THE MACHINERY OF MANIPULATION: A COMPARATIVE ANALYSIS OF PRINCIPAL-AGENT DYNAMICS AND ELECTION MANIPULATION IN RUSSIA, MEXICO, AND UKRAINE

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ABSTRACT

Cole J. Harvey: The Machinery of Manipulation: A comparative analysis of principal-agent dynamics and election manipulation in Russia, Mexico, and Ukraine
(Under the direction of Graeme Robertson)

The most common form of authoritarian government in the modern world is one that holds contested elections. Elections in these electoral authoritarian regimes have been shown to have a variety of stabilizing effects for incumbents, even as organized opposition contestation poses some risks. This project investigates how authoritarian leaders attempt to manage these risks through electoral manipulation. In particular, it addresses two interrelated questions: why are some elections manipulated more severely than others, and why do the techniques used to tamper with elections vary across space and over time?

To answer these questions, I investigate principal-agent dynamics between leaders who wish to influence the election result and the individuals who actually stuff the ballot boxes, buy the votes, or forge the results. These low-level actors must bear the direct costs and risks of tampering with the election, while the direct benefits of manipulation accrue to the leader. I find that this principal-agent relationship helps determine the severity and type of election manipulation that political leaders are able to generate.

In particular, two factors interact to shape the principal-agent relationship. First, agents are more likely to manipulate on behalf of a leader who controls the bulk of patronage resources in the society. Second, agents must evaluate the local risk of exposure and punishment for engaging in illegal forms of manipulation, even if their patron wins. Where these risks are high, agents are more likely to adopt harder-to-detect forms of manipulation, like vote-buying. When risks are low, tactics like falsification are more likely.

I test this theory using multiple methods. I draw primarily on election forensics—statistical analysis of precinct-level election results to identify non-random patterns in the data. I employ multiple election-forensic tools to analyze election results in the subnational regions of Russia, Mexico,

and Ukraine over time. I also conducted field interviews of election observers and administrators, and a survey experiment of public attitudes toward electoral manipulation, both in Russia. The results support the argument that patronage and agent risk drive the severity and type of election manipulation in electoral authoritarian regimes, hybrid regimes, and unconsolidated democracies.

To Jo, for always being there, and to Eleanor, who has just arrived.

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CHAPTER 1

Introduction

When the last vestiges of the Soviet Union finally crumbled in December 1991, the dissipation of the old regime set in motion a process of decentralization within Russia itself: many of the newly-independent country's regions sought to capture as much sovereignty from the center as they could swallow, to use President Boris Yeltsin's famous phrase. While many of the old system's levers of patronage and influence had passed into Yeltsin's hands, the Communist Party of the Russian Federation (KPRF) remained the only political party in the country that boasted a nationwide network of supporters, activists, and organizational infrastructure. These factors, combined with the economic pain of the transition to a market economy, resulted in the Communists' victory in Russia's first regularly scheduled legislative election, in December 1995, six months before Yeltsin himself was up for re-election.

Yeltsin prevailed in that contest, despite Russia's political fragmentation, a well-organized rival party in control of the legislature, difficult economic and social conditions, and approval ratings in the single digits a few months prior to the election. He accomplished this feat in no small part by drawing on the resources of the state and of allied business interests to manipulate media coverage, voters, and the election results. That an incumbent in such a challenging position could successfully manipulate an election is puzzling, since it flies in the face of dominant theories of electoral manipulation. Traditional theories of manipulation hold that it should be rare in just such a setting: where political competition is fierce and the risk of post-election protest is high. Similarly, more recent models that emphasize the staying-power of the leader—captured most clearly by approval ratings—drives local agents to participate in manipulation on his behalf; under this framework, Yeltsin's dismal prospects after the KPRF victory in 1995 should have driven agents to play it safe. The outcome represented by Yeltsin's victory in 1996 is one of the puzzles addressed by the theory presented in this manuscript: how can political candidates facing low popularity, internal political fragmentation, economic crisis, or other serious handicaps nevertheless produce enough

electoral manipulation to win their elections?

Russian political history also provides a representative example of the second puzzle this project seeks to address. In important ways, the 2011 Russian legislative election was a mirror-image of the situation facing Yeltsin in 1996. The economy, while struggling to fully recover from the financial crisis of 2008, was growing. The country's internal fragmentation had largely been arrested during President Vladimir Putin's first two terms, in which regional authorities and wealthy oligarchs had both been brought firmly under the Kremlin's influence. Six months from the election, Putin's approval rating stood at 69 percent, and the ruling party—United Russia—was dominant in both the national legislature and in regional legislatures across the country. Despite these advantages, the ruling party suffered a significant defeat at the polls, losing 77 seats and its constitutional supermajority in the legislature. Even so, the results were tainted by widespread allegations of election manipulation, prompting a nationwide protest movement (Za Chestnye Vybory—For Fair Elections). The 2011 Russian election is an example of something close to the worst-case scenario for an electoral authoritarian leader: electoral defeat coupled with potentially destabilizing protest. That such a negative outcome occurred despite all of the advantages available to the ruling party represents the second puzzle studied here: how can incumbent leaders with strong states and deep resources sometimes fail to produce enough electoral manipulation to win the election and stave off mass protest?

This project offers a theory of electoral manipulation that explains both kinds of puzzling outcomes: 'over-production' of electoral manipulation by weak parties and 'under-production' by strong ones. In doing so it addresses broader research questions. Why does the severity of elections vary from country to country, within countries during the same election, and within the same territory from election to election? Why are different techniques used to bias electoral outcomes under different circumstances? And which actors drive that variation? I identity two explanatory factors that together account for type of electoral manipulation that is likely to occur in a particular case, as well as the severity. These are access to patronage resources on the one hand, and local risks to agents on the other. The appeal of participating in a rich patronage network draws agents to engage in electoral manipulation; leaders who have consolidated control over large patronage networks can generate more electoral manipulation as a result. However, local risks—public exposure, criminal penalties, and so on—make manipulation risky for agents. These local risks are driven by factors

like an independent and active media (which can investigate and publicize electoral malfeasance), an independent judiciary, and—most importantly—a large and active opposition party presence. These factors are generally not uniform features of a country, but tend to vary by locality. Just as democratic countries may have subnational authoritarian enclaves (Gibson, 2013), non-democratic countries may have pockets of elevated contestation and more active civil society (Gilley, 2010).

When local risks are high, agents are more likely to engage in forms of electoral manipulation that are difficult to observe and trace, in order to avoid exposure and punishment. These include tactics like vote-buying and voter pressure; agents who engage in these sorts of activities are difficult to monitor and track, since they take place at varying times on or before election day, and at places other than the polling station. As a result, I classify these hard-to-attribute methods as dispersed forms of manipulation. By contrast, techniques like falsification and ballot stuffing generally occur in the polling place on election day, making them easier to observe and for perpetrators to be identified. These are centralized tactics.

The model makes predictions for both the level and type of manipulation, summarized in Figure 1 and Table 1 below. In brief, when a leader's control over patronage is low, manipulation on behalf of that party is relatively rare since inducing agents' cooperation in the patronage network is difficult. It is least likely to occur in places where local risks to agents are high; if the leader controls enough patronage resources to attract election-manipulating agents, she is more likely to be able to do so in places agent risk is low. When leaders control a greater share of patronage resources, electoral manipulation increases in severity by tactic. In areas where opposition parties (in addition to independent media and courts) are weak, agents can engage in centralized manipulation like falsification of results. In high-risk areas agents are less likely to adopt centralized tactics, and more likely to engage in dispersed vote-buying and voter pressure.

I test this theory using data from three country cases—Russia (2003-2012), Mexico (1994-2012), and Ukraine (2002-2014)—and multiple methods. For each case, I use election forensic techniques to identify potentially suspicious patterns in precinct-level election results and multilevel regression analysis to show how evidence of election tampering varies according to local and national political conditions. I also draw on field interviews and survey experimental results conducted in Russia, to help discriminate between possible causal explanations for the statistical results. More details on theory-testing are provided in the section on case selection and measurement later in this chapter.

1.1 Existing explanations of electoral manipulation, and their limitations

Multiparty elections are the hallmark of modern politics the world over. Most single-party communist states collapsed in the late 1980s and early 1990s, and military regimes—largely bereft of their Cold War-era sponsors—have become relatively scarce and short-lived. Multi-party national elections, held in less than fifty percent of countries in 1985, were held in over seventy-five percent by 2005 (Magaloni and Kricheli, 2010). In some cases, multiparty elections have signaled a transition to a more liberal democratic mode of government (Brownlee, 2007; Howard and Roessler, 2006). However, in the bulk of cases, transitions from closed forms of authoritarianism have led to limited electoral democracy, competitive authoritarian regimes, or hegemonic authoritarian systems with one dominant party (Donno, 2013; Levitsky and Way, 2010; Hadenius and Teorell, 2007). In each of these regime types, multiparty elections are held and are conceived of as the only legitimate route to political power, but at the same time are manipulated to varying degrees by governments and political parties.

Due to the prevalence of these elections—unfree and unfair, but still contested and at least somewhat risky for governments—researchers have increasingly worked to understand their function in non-democratic societies. Multiparty elections have been shown to be beneficial for regime longevity on average (Gandhi, 2008; Gandhi and Lust-Okar, 2009; Gandhi and Przeworski, 2007), in part by helping ruling parties distribute spoils (Blaydes, 2011; Lust-Okar, 2006) and commit to power sharing (Magaloni, 2008), co-opt opposition parties (Reuter and Robertson, 2015), and signal dominance to other political actors (Greene, 2007; Magaloni, 2006). Nevertheless, allowing contested elections creates an opportunity for opposition mobilization, international pressure, and the revelation of citizens' true preferences, and can sometimes be destabilizing as a result (Brownlee, 2009; Bunce and Wolchik, 2010; Little et al., 2015).

To mitigate these risks, ruling parties in non-democratic states rely on a variety of tools that can unfairly influence the outcome of the election (Schedler, 2002). This toolkit includes methods that involve voters directly, such as vote-buying, voter pressure, and multiple voting, as well techniques where voter contact is not required (such as ballot-stuffing and the falsification of results). All of these techniques are illegal and procedurally illegitimate, even in authoritarian regimes, which exposes the perpetrators of such misdeeds to possible sanctions. The risk that low-level agents of a political party may face criminal or political punishment for illegal/illegitimate activity is a

primary driver of the theory of electoral manipulation I elaborate below; as a result, I do not consider legalized forms of electoral manipulation (biased electoral rules or gerrymandering, for example) in this project. There are, however, connections between the theory elaborated in this project and the use of such legalized forms of manipulation in more competitive settings, including in consolidated democracies.

As with holding multiparty elections, election manipulation carries its own risks and benefits. The risks are well known: the possibility of mass protest in response to rigged elections figures prominently in formal models of electoral manipulation (Fearon, 2011; Little, 2012; Magaloni and Kricheli, 2010), as well as in more qualitative studies (Bunce and Wolchik, 2009; Tucker, 2007). More recently, researchers have begun to articulate the stabilizing effects of electoral manipulation. In particular, effective electoral manipulation can send a signal about the ruling party's organizational capacity and staying power to other political actors, like opposition parties, bureaucrats, and voters (Gehlbach and Simpser, 2015; Simpser, 2013). The ruling party's ability to sway elections can encourage ambitious politicians to join with the ruling party and help prevent elite splits (Magaloni, 2006). Despite these benefits, there is wide variation in the degree to which elections are manipulated (Simpser, 2013).

There have been a number of efforts to understand the causes of variation in the degree to which elections are manipulated, which have yielded a variety of correlates. These include inequalities in wealth and power (Lehoucq and Molina, 2002; Ziblatt, 2009; Frye et al., 2017; Anderson, 2000). Similarly, poverty has been widely found to facilitate various forms of electoral malfeasance, especially vote-buying (Birch, 2011; Nichter, 2008; Stokes, 2005). These findings fit into a long scholarly tradition that sees inequality and deprivation as impediments to the development of democracy (Acemoglu and Robinson, 2006; Moore, 1993; Rueschemeyer et al., 1992).

Several other socioeconomic conditions have been tied to electoral manipulation. Dense ethnic networks can also make manipulation more appealing, by easing the monitoring of voters and reducing the likelihood that misdeeds will be exposed (Hale, 2007; Goodnow and Moser, 2012). Voters with higher levels of education are less likely to be targets of vote-buying efforts (Kitschelt and Wilkinson, 2007), while territories with larger populations are correlated with lower levels of manipulation(Nichter, 2008; Simpser, 2013; Larreguy et al., 2016). Finally, researchers have found both positive (Domínguez and McCann, 1998) and negative (Birch, 2011; Lehoucq and Molina, 2002)

effects for urbanization on electoral manipulation.

Understanding the socioeconomic predictors of manipulation is important, but by far the most theoretically significant predictor of electoral manipulation is the competitiveness of the election. An older school of thought held that close elections raise the stakes for the participants, thus increasing the marginal value of a manufactured vote and driving increased manipulation (Lehoucq, 2003; Ziblatt, 2009; Argersinger, 1985; Cox and Kousser, 1981). The role of competitiveness can be modified by other features of the political system. The winner-take-all nature of single-member electoral districts makes fraud more common in such systems than in those that use proportional representation (Birch and Van Ham, 2017), and high levels of corruption in a state can make the spoils of victory more attractive (Birch, 2011). Similarly, presidential elections are likely to produce higher levels of manipulation, presumably because the stakes are higher in such contests than in legislative elections (Simpser, 2013).

This classic view has been challenged on two fronts. First, Simpser (2013) convincingly argues that uncompetitive regimes are in fact likely to demonstrate the most severe electoral manipulation, as resource—rich, politically unconstrained ruling parties utilize their manipulative resources to send signals of dominance that can deter anti-regime activity by others. The second competitor to the conventional wisdom is presented in a formal model by Rundlett and Svolik (2016). Their model, which articulates principal-agent and collective-action problems inherent in election manipulation, holds that low-level agents will be reluctant to engage in manipulation when they perceive that their political principal is unlikely to win the election (a judgment they make based on the principal's popularity in the agent's district).

These two theories make somewhat competing claims, and leave some empirical outcomes unexplained. The signaling model struggles to account for occasions when strong, unrestrained ruling parties fail to deliver the excessive levels of electoral manipulation that the model predicts.[1] Likewise, the information-based model of Rundlett and Svolik fails to account for scenarios in which deeply unpopular incumbents were nevertheless able to induce local agents to engage in electoral

[1]For example, the 2011 parliamentary election in Russia, in which the ruling party won only 49% of the vote.

manipulation sufficient to remain in office.[2] Finally, both models predict uniform changes in electoral manipulation overall. Consequently, they cannot easily account for a growing body of research that many electoral manipulation tactics behave as substitutes, with some techniques increasing in severity even as others decline (Asunka et al., 2017; Harvey, 2016; Kuo and Teorell, 2017; Sjoberg, 2013; Van Ham and Lindberg, 2015).

The framework that I elaborate in this project addresses each of these unresolved questions in the literature on election manipulation. It describes the conditions under which powerful ruling parties might fail to deliver high levels of electoral manipulation—when patronage consolidation begins to break down into rival networks, and/or when local risks to agents become sufficiently widespread to prevent effective manipulation. Similarly, it can account for the success of unpopular incumbents, so long as they can hold their patronage networks together. Finally, by accounting for differential risk levels for agents who engage in dispersed versus centralized manipulation, it explains observed variation in the kinds of manipulation that are observed in different political contexts.

1.2 Theory in brief

In order to reap the benefits of electoral manipulation, political candidates must rely on large, pyramidal networks of agents to affect the results (Auyero, 2007; Hale, 2014), raising the possibility that these agents may not always behave as the boss might prefer (Rundlett and Svolik, 2016). Throughout this project, I consider a principal to be a national-level executive or party leader, while agents are the front-line individuals tasked with directly influencing election results by illegal means—the individuals who stuff the ballot boxes, buy the votes, and forge the results. As a result, I refer to principal-level effects as national, and agent-level effects as local. However, this model can be adapted to different electoral scales (i.e. the principal could be a mayor at the local scale).

Principals and agents care about different things. Agents care about access to patronage resources—jobs, rents, and other resources—that they can gain as a participant in a political leaders' election-manipulation network. For example, a neighborhood broker who engages in vote-buying gains access to cash or other benefits (meant for distribution to voters) and may also be rewarded with a political position in the local administration through which additional rents can be extracted

[2]The re-election of Boris Yeltsin in 1996 is an excellent example; Yeltsin trailed his Communist Party rival in the polls for most of the campaign, at times polling in the single digits (Hough et al., 2010).

(Zarazaga, 2014). A schoolteacher pressed into service as an election administrator, as is common in Russian elections, may face pressure to participate in ballot-stuffing in order to preserve her job, salary, or benefits. The greater share of patronage resources that a political leader controls, the more attractive participation in her network is for agents. This increase in control over patronage resources acts as an incentive for agents to engage in electoral manipulation, increasing the likely severity of tampering with the election.

Political principals can benefit directly from electoral manipulation (Greene, 2007; Magaloni, 2006), since it improves their chance of winning close elections (Lehoucq, 2003), and widens the margin of victory (Simpser, 2013; Gehlbach and Simpser, 2015). By contrast, agents perform their assigned tasks in order to remain embedded within a principal's patronage network. To induce agent cooperation, principals in electoral authoritarian regimes tie access to the state and its associated rents to electoral success (Diaz-Cayeros, 2006; Lust-Okar, 2006; Reuter and Robertson, 2012, 2015). This creates a powerful incentive for local agents to boost the principal's vote-share by whatever means are available, in order to remain within the privileged network.

However, if the principal appears less likely to control access to patronage due to electoral defeat or intraparty rivalry, her offer of post-election patronage will appear less viable, making it more difficult for principals to credibly commit to rewarding agents (Hale, 2006). Following Hale (2014)'s conception of 'patronal politics,' I argue that a principal's ability to credibly promise post-election patronage is contingent on patronage consolidation: the share of resources controlled by her patronage network, relative to those of potential rivals.[3] To clarify, for a patronage network to exist in the context of election manipulation, there must be continuous links between the political candidate (the principal) and the front-line agent in a particular territory; rewards and favors flow down from the candidate through a series of brokers to the individual agent in a particular local context. It is important to be clear about the distinction between the existence of patronage politics in a country generally, and the degree of consolidation of patronage networks. Patronage politics may be pervasive in a given case, but divided among many competing networks. In such a case, this theory predicts that it will be difficult for any one network to systematically mobilize large numbers

[3]This corresponds to Hale's (2014) conceptualization of "single-pyramid" and "multiple pyramid" patronage systems (p. 10).

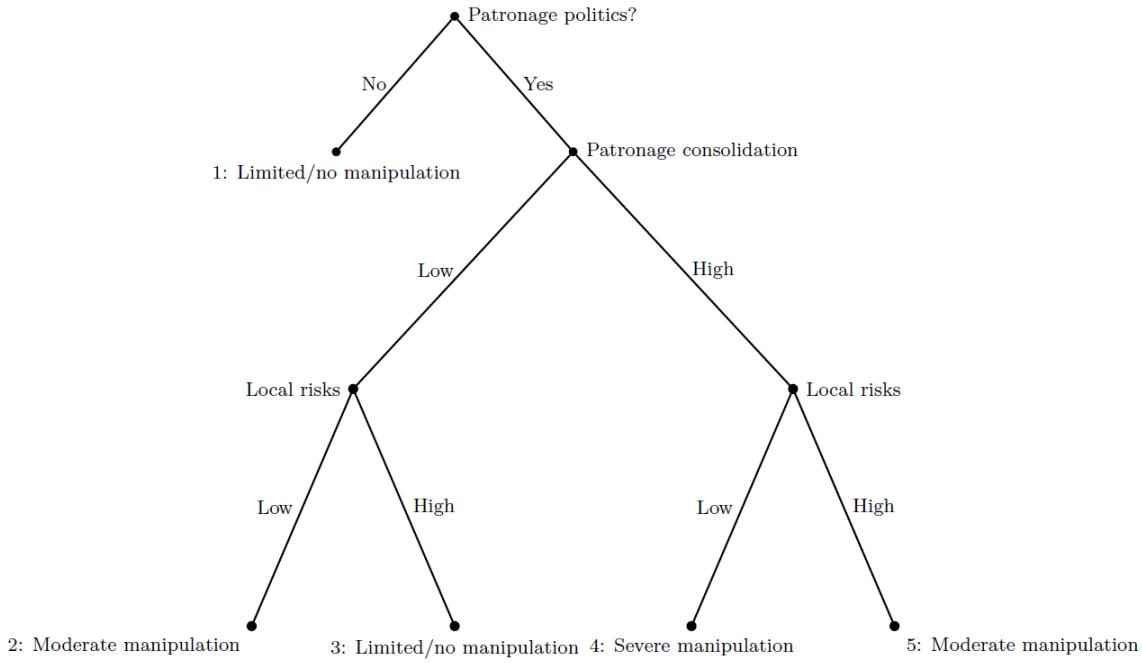

Figure 1.1: Overview of the theoretical model with regard to severity of manipulation

of agents.

Figure 1.1, a general schematic of the theory, makes this distinction clear. In the absence of patronage politics, incidents of illegal electoral manipulation are likely to be rare and unsystematic. Without a patronage-based reward system to incentivize election tampering, actions like vote-buying or vote tampering are likely to be carried out by isolated overzealous partisans, if at all. This is in line with the broader literature on clientelism, in which the loss of patronage resources (Greene, 2007) or the increasing cost of purchasing citizens' votes as countries develop (Stokes et al., 2013) leads to greater programmatic competition and reduced vote-buying. The electoral history of the United States, among other developed democracies, is also illustrative.

Illegal election manipulation of all sorts was common in the rural United States for much of the late 19^{th} and early 20^{th} centuries—including vote-buying, multiple voting, intimidation, ballot-stuffing, pressure by employers and supervisors, and outright fraud (Argersinger, 1985; Cox and Kousser, 1981). Machine politics based on patronage distribution, famously exemplified by New York's Tammany Hall, was common in cities across the country (Trounstine, 2009). By the modern era in the United States, such occurrences became exceedingly uncommon, despite regular accusations by political leaders (Minnite, 2017; Norris et al., 2018). Eventually, bowing to political

pressure and strategic concerns, the federal government and the states adopted civil service reforms that constrained the ability of elected leaders to rely on patronage rewards to mobilize agents at election time (Folke et al., 2011; Theriault, 2003). Similar processes occurred in other early modern democracies (Teorell, 2017). Once patronage networks are disrupted, manipulation on a systemic scale becomes very unlikely. Node 1 on the diagram in Figure 1.1 represents this outcome; while not included in this study, most developed democracies would fall under this category.

Given that patronage politics is important in a given case, the nature of the patronage system is the next important theoretical distinction. Put simply, are there multiple competing sources of patronage for agents? Or does one network control access to most patronage jobs, rents, and other resources? When one patronage network predominates, agents have a strong incentive to support that network's principal: access to rents and resources outside that network is limited, competing offers of patronage by opposition figures are necessarily discounted, and punishment of defectors by exclusion from the network seems assured (Hale, 2014). In a society characterized by multiple patronage networks, by contrast, the credibility of an individual principal's offer is contingent on the likelihood that the principal will win the election or leadership struggle. As a result, clients 'hedge their bets or pin their hopes on different networks in an uncoordinated fashion' (Hale, 2014, p. 72).

The lure of a principal's patronage network is only half of the equation for agents, however. They must also consider the risk that their electoral misdeeds—falsification, vote-buying, intimidation, and so on—may be met with legal or political penalties. This risk is clearest when incumbents lose the election, as in the Rundlett and Svolik (2016) model. In this scenario, supporters of the outgoing principal are obvious candidates for prosecution and exclusion from patronage resources (Hale, 2014; Levitsky, 2003). A patron going down in defeat is not the only risk agents must consider, though; agents can also find themselves facing punishment even if their principal remains in office. Possible punishments for illegal election manipulation include criminal penalties like fines and even jail time, but also political penalties: job loss, demotion or expulsion from the ruling party, and so on.

A variety of local political factors influence the degree of risk to agents. For example, pro-incumbent manipulation is easier to accomplish and harder to expose when opposition parties have limited representation on election commissions (Kovalov, 2014; Bader, 2012; Calingaert, 2006), while election monitors can expose and deter some forms of manipulation (Asunka et al., 2017; Hyde, 2011; Kelley, 2012; Sjoberg, 2013). In regions where courts are more independent of the ruling party,

opposition party figures are more likely to pursue election-related complaints in regional courts (Popova, 2006) which can sometimes act to redress low-level electoral violations (Popova, 2012). By increasing risks to agents, local constraints affect the relative value of a principal's offer of patronage; a particular patronage offer may be sufficient to convince an agent to engage in manipulation in a local setting where constraints are low, but insufficient in cases where constraints are higher. As a result, the interaction of patronage and constraints affects the level of manipulation observed.

The nodes at the bottom of the Figure 1 demonstrate the interaction effects predicted by the theory with regard to the severity of manipulation. When patronage consolidation is low—meaning that there are multiple networks competing for agents' loyalty and for electoral success—and local risks are low, the level of systemic electoral manipulation in that region is expected to be moderate. For some agents, the uncertainty of patronage rewards in such an environment deters them from participating in a manipulation effort, while for others this uncertainty is balanced out by the low risk of exposure and punishment. As a result, substantial but not severe manipulation should be observed. Examples of cases in the corresponding Node 2 include local PRI and PAN strongholds in Mexico after economic and political liberalization broke up the PRI's hegemonic control of patronage resources.[4]

Alternatively, when patronage consolidation is low but local risks are high, participation in manipulation efforts becomes a losing proposition for most agents; the risk of exposure outweighs the possible patronage benefits. In these regions, despite the existence of patronage politics, elections are likely to be relatively free of illegal manipulation due to the difficulty of recruiting agents as Node 3 in the diagram indicates. In this study, states in Mexico where opposition parties broke the PRI's hold on power early in that country's democratic transition—such as Baja California, Jalisco, or Nayarit—provide examples of the combination of elevated risks for agents and fragmenting patronage networks.

When patronage consolidation is high, the existence of a dominant network creates a powerful incentive for agents to engage in illegal manipulation. The network's resources and lack of significant rivals helps it overcome a coordination problem; individual agents are likely to expect that other

[4]I use the term *constraint* rather than *competition* since partisan competition is only one potential limitation on agents' ability to manipulate, which also include the courts, civil society monitoring groups, the media, and others.

agents will also be working on the dominant network's behalf, increasing the odds of victory and making their own continued access to patronage resources appear more secure (Rundlett and Svolik, 2016). Still, elevated local risks due to active opposition parties, courts, media outlets, or civil society can moderate this incentive; some agents may find the risk outweighs the expected benefit. Such cases are likely to result in moderate levels of manipulation, as shown at Node 5; the mixed incentive structure mirrors those cases at Node 2 where patronage consolidation and local risks are both low. Examples of this outcome are found in Moscow and other regions of Russia where opposition groups are active, despite the overall dominance of the ruling patronage network reflected by the governing United Russia party. Ukraine's western regions also shift from Node 3 to Node 5 during the Yanukovych presidency, which in combination with constitutional reforms brought the 'Donetsk clan' patronage and its allies to national power.

Finally, when patronage consolidation is high and local risks are low, the most severe incidences of electoral manipulation are too be expected—neither uncertainty about rewards or fear of punishment is likely to deter agents in significant numbers. Russia's Caucasus republics of Chechnya and Dagestan are examples of such cases, falling under Node 4 in Figure 1.1.

Figure 1.1 sketches the theory with regard the severity of manipulation, but the theory also has implications for the type of illegal manipulation that agents will be willing to deploy under different circumstances. When local constraints make manipulation riskier, agents can choose to insulate themselves from that risk by engaging in forms of electoral manipulation that are more difficult to observe and trace back to perpetrators. For example, falsification and ballot fraud are usually carried out by agents who occupy a public, official position in the election administration and/or political parties (Birch, 2011, p. 61). Election commissioners, for example, have a variety of means by which they can influence election results. However, discrepancies are easily traced back to them, especially when there is political and legal pressure to do so. By contrast, forms of electoral manipulation that are more dispersed—like vote-buying and voter-pressure—are harder to observe and attribute to organizers, who may be employers (Frye et al., 2014), neighborhood brokers (Stokes et al., 2013), and other non-state actors (Mares and Young, 2016). Unlike more centralized tactics, partisan and civil-society monitors do not know where and when to look for these activities, making them more difficult to trace than direct manipulation of the election administration (Birch, 2011). The nature of this kind of clientelistic exchange—in which brokers often know their clients directly,

	Patronage consolidation low	Patronage consolidation high
Local risk high	Limited or no manipulation Example: Early competitive Mexican states (e.g. Jalisco, Baja California)	Dispersed manipulation (i.e. vote-buying) Example: Russia, Moscow Oblast'
Local risk low	Centralized manipulation (i.e. fraud in counting or tabulation) Example: Western Ukraine, 2005-2010 (Yuschenko period)	Centralized manipulation (i.e. fraud in counting or tabulation) Example: Russia, Republic of Dagestan

Table 1.1: Patronage consolidation, local risk, and manipulation type

and benefit from either an asymmetrical power relationship (Frye et al., 2014) or a sense of trust (Kramon, 2016)—makes these techniques harder for monitoring organizations to expose.

Table 1.1 presents these expectations with case examples. As the table indicates, local risks are the primary driver of the kind of manipulation agents employ. When risks are high, manipulation is either severely curtailed (when patronage networks are unconsolidated) or takes the form of dispersed tactics like vote-buying and voter pressure. When risks are low, centralized techniques like fraud are the preferred tool of regimes and their agents in most cases due to the cost-effectiveness of those tactics. Principals' resources are not limitless, and they face a budget constraint on their ability to generate electoral manipulation. Even cheaper dispersed tactics like pressuring voters through their employers still require monitoring efforts and rewards for compliant businesses (Frye et al., 2014, p. 207). Agents and brokers engaged in falsification or other types of manipulation must still be organized and compensated (Langston and Morgenstern, 2009). Vote-buying is especially costly (Lehoucq and Molina, 2002; Wang and Kurzman, 2007), and becomes increasingly so as competitiveness increases (Corstange, 2018). As a result, incumbents are likely to prefer centralized forms of manipulation in low risk areas, due to their cost-effectiveness (Harvey, 2016; Van Ham and Lindberg, 2015). Consequently, if higher local constraints make agents less willing to tamper with elections in administrative ways, principals may find agents both more expensive to hire (as they turn toward vote-buying and similar tactics) and more likely to shirk their duties on election day (as they become harder to monitor). This limits the ability of principals to compensate for higher competitiveness by boosting payments for agents.

1.3 Case selection and measurement

In order to test this theory, I draw on data from three country cases and make use of multiple quantitative and qualitative methods. Several elections are analyzed for each country case, with the time period covered varying according to the availability of precinct-level election data. For Russia, these are the legislative elections of 2003, 2007, and 2011, and the presidential elections of 2004, 2008, and 2012. The Ukrainian case includes legislative elections in 2002, 2006, 2007, 2012 and 2014, along with presidential elections in 2004[5], 2010, and 2014. Lastly, precinct-level election data is available for the widest range of elections in Mexico, including the general elections of 1994, 2000, 2006, and 2012, in addition to congressional elections in 1997, 2003, and 2009.

The case countries were selected for their variation in the two explanatory factors discussed above, as well as in the dependent variable—the overall level of electoral manipulation. All three are large, internally diverse countries with subnational variation in the degree to which ruling parties dominate at the local level. For example, in Russia the ruling party faces serious competition in places like Moscow, while maintaining near hegemonic status in many of Russia's titular ethnic republics. Likewise, (prior to the 2014 crisis) most eastern regions in Ukraine were dominated by political machines allied with a largely pro-Russia and anti-reform party; machine politics was more limited in most western regions, where pro-Europe, pro-reform parties competed for votes. Following economic and political liberalization in Mexico, some regions remain strongholds for the old ruling party, while others are closely contested by two of the three major parties.

Similarly, the three cases present diverging trajectories with regard to the consolidation of patronage resources (and the development of democracy). All three cases began a process of increased multi-party competition in the 1990s, as the Partido Revolucionario Institucional (PRI) lost its decades-long hegemony in Mexico while Ukraine and Russia emerged as multi-party polities from the collapse of the Soviet Union. Mexico is a case of decreasing patronage consolidation, as the PRI gradually lost its dominant access to patronage resources (Greene, 2007). Russia during this time period is a case of generally increasing patronage consolidation, as Vladimir Putin worked to restore the power of the federal center vis-à-vis regional bosses and wealthy oligarchs. Lastly,

[5]Unfortunately, only the election results for the re-run of the 2004 Ukrainian election are publicly available; the results of the annulled election that sparked the Orange Revolution are not included in the dataset.

Ukraine represents a middle (and complicated) case. Patronage consolidation is high for pro-Eastern parties prior to 2005 and after 2010; it is low during the middle period due to constitutional reforms and pro-Western control of the presidency. For pro-Western parties, patronage consolidation is consistently low (due to their geographical base of support and the 2005-2010 constitutional system). This national-level variation across cases, when combined with the widespread local political variation within cases, allows me to test the interactive hypotheses generated by my theory.

Lastly, the overall level of electoral integrity varies both across and within the cases. While elections were highly managed affairs during the period of PRI hegemony in Mexico, major institutional changes instituted in the late 1980s and 1990s have led to significant improvements in the electoral environment (Cantú and García-Ponce, 2015; Eisenstadt, 2003; Magaloni, 2006), though irregularities remain (Larreguy et al., 2016, 2017; Benton, 2017). Russia's experience is in this sense a mirror-image of Mexico's, as elections have become more tightly controlled, using illegal and legal techniques, during Vladimir Putin's 18-plus years as the country's principal leader (Frye et al., 2017; Moser and White, 2013; White, 2011). Electoral integrity in Ukraine has fluctuated dramatically over the last two decades, improving in the aftermath of the 2004 Orange Revolution, but deteriorating again under the presidency of Viktor Yanukovych (Kovalov, 2014). Figure 1.2 shows this general trend from 1990 to 2014, using the 'electoral component index' measure from the V-Dem project; higher scores on this index indicate higher levels of electoral integrity.[6] In all three cases, the overall trend obscures internal variation: some regions hold relatively fair elections, while other regions experience more widespread tampering. The latter category includes, for example, several of Ukraine's eastern regions, republics in Russia's Caucasus, and subnational partisan strongholds scattered throughout Mexico.

There are additional advantages to this research design. All three cases are internally heterogenous on important control variables, like GDP per capita or ethnic makeup of the population. As a result, they are useful cases for the study of the effect of local political conditions on election manipulation. Finally, analyzing patterns of manipulation within countries over time allows me to hold many potential confounding variables constant across elections. These variables include political culture

[6]This is a component indicator of the broader V-Dem measure of electoral democracy; it is a measure of electoral integrity, the extent of suffrage, and freedom of association.

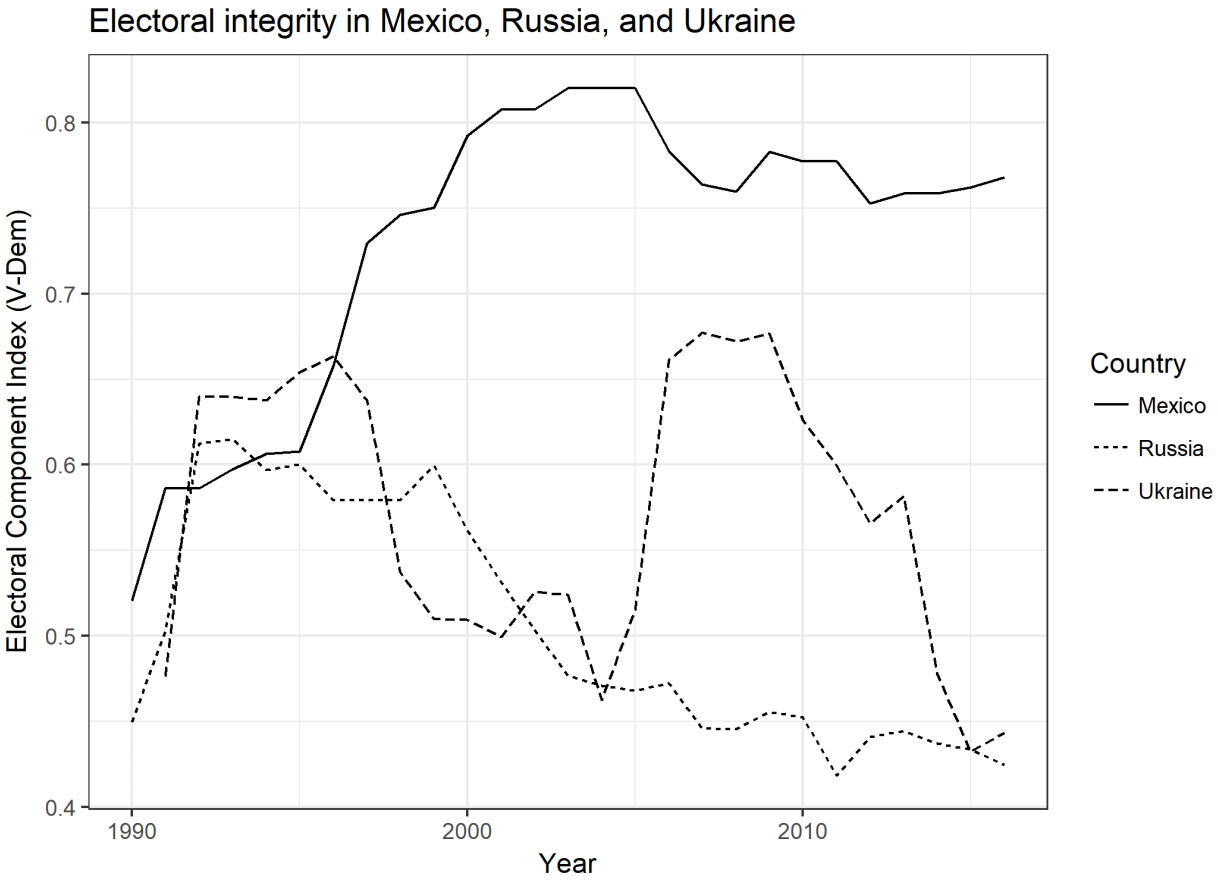

Figure 1.2: Overall electoral integrity across three cases

and state-level institutional design, among others.

The identification and measurement of electoral manipulation poses a significant methodological problem: the phenomenon is often clandestine, almost always illegal, and its empirical fingerprints can be hidden among the noise of genuine votes. This challenge has spurred considerable innovation among researchers in recent years, beginning with efforts to systematically code expert evaluations of election quality (Hyde and Marinov, 2012; Coppedge et al., 2017) or election monitors' reports (Kelley, 2012). Such datasets are very useful for providing baseline prior expectations for overall election manipulation in a country, often have wide geographical coverage, and can give valuable insight into the techniques that are commonly used in particular states. However, they also have drawbacks; expert's retroactive evaluations can be flawed, and election monitors ability to observe manipulation can be limited by political geography and by ruling-party adaptation (Kelley, 2012; Sjoberg, 2013; Buzin et al., 2016). As such, while they inform some of the work in the following chapters, they are not well suited for the questions at hand here; testing the theory outlined above requires fine-grained estimates of electoral manipulation at the regional (or even local) level.

To achieve this level of detail, I primarily rely on election-forensic analysis of precinct-level election results (each country case contains thousands of precinct-level observations per election year). Election forensics is a growing family of statistical techniques aimed at detecting patterns in electoral data that would be unlikely to occur in the absence of electoral manipulation (Beber and Scacco, 2012; Deckert, 2013; Deckert et al., 2011; Myagkov et al., 2009; Montgomery et al., 2015). I make use of several techniques, including turnout-based tests and digits tests, to identify multiple forms of electoral manipulation. In particular, digits tests are useful for detecting falsification, overall turnout tests can capture general electoral manipulation, and specific subsets of turnout (like absentee voting) can be used to detect techniques like vote-buying depending on the context (Harvey, 2016).

In addition to election forensics, I also draw on insights from field interviews of election monitors, academic experts, leaders of an election-monitoring civil society group, and precinct election commissioners. These interviews were conducted in Russia from September-December 2015. This qualitative data helps clarify the causal mechanisms underlying the patterns detected in the election-forensic models. Finally, in an effort to better understand the risks of engaging in electoral manipulation for both agents and leaders, I employed vignette and list survey experiments using a nationally representative sample of Russians in summer 2016.

1.4 Contributions of the argument to prior research

The questions considered here are central to the study of regime durability in electoral authoritarian and unconsolidated democratic states. Where ruling parties can generate enough electoral manipulation to cow potential challengers, elections can be stabilizing. However, when ruling parties are unable to marshal enough resources to manipulate the election overwhelmingly, they run the risk of destabilizing mass protest or outright defeat. This theory goes beyond prior work in explaining why ruling parties sometimes fall unexpectedly short in their ability to manage elections, and why they sometimes do surprisingly well. It points to the importance of factors that are more structural than the competitiveness of the election itself, factors which are difficult to measure but nonetheless explain much of the variation in illegal electoral manipulation. Under what circumstances will parties be less likely to be able to generate electoral manipulation, potentially putting the status quo at risk? This theory says that we should look less toward factors like incumbent approval ratings, and more toward the ability of incumbents to maintain cohesive patronage networks and to isolate and contain local political contestation.

The second major question addressed here is a relatively more recent one in the literature, but no less important: given that an election is being manipulated, what explains variation in the techniques used to bias the outcome? In other words, why are elections in some countries marked by widespread vote-buying even though the count itself is fair, while in other countries vote-buying is rare but coercion or falsification are common? There are several reasons this question is important. First, it is impossible to answer the first question without an understanding of the second. For example, researchers have elaborated general theories of variation in electoral manipulation, but only tested those theories empirically using particular manipulation techniques. At best, this approach limits the conclusiveness of those findings; at worst, it precludes the possibility that those theories may be falsified when applied to alternative forms of manipulation. For example, Rundlett and Svolik (2016) argue that electoral manipulation generally will decline as incumbent leaders become less popular; they test this claim using a measure of falsification in a Russian election, and show that evidence of falsification declines with incumbent-party popularity in line with their predictions. However, other work shows that vote-buying and ballot-stuffing increase as falsification declines, challenging their general model of manipulation (Harvey, 2016). This theory provides a framework for understanding this substitution effect. When centralized manipulation is unobtainable due to the risk of exposure

for agents, principals with the resources can turn to dispersed tactics like vote-buying; others must content themselves with legal forms of manipulation or a clean election.

Furthermore, understanding variation in the forms electoral manipulation takes will improve the theory and practice of electoral manipulation, by indicating how and why ruling parties seek to avoid the detection of some kinds of manipulation. In particular, it will be useful to know whether observed shifts in some forms of electoral manipulation away from monitored precincts (Asunka et al., 2017; Sjoberg, 2016) are driven by the risk of protest and instability feared by political leaders—as in the conventional wisdom—or by the risk of exposure and punishment feared by low-level agents, as I argue here. Distinguishing between these two mechanisms will improve our theoretical understanding of why election monitoring succeeds or fails in promoting clean elections (Kelley, 2012), and also has implications for the sorts of policy tools that may effectively deter manipulation. For example, if the agent-based explanation is predominant, it is not necessary to look to large-scale collective action to deter manipulation, but rather to sharpening the difference in the incentive structures of candidates and their agents. In particular, this theory implies that reformers and opposition supporters might emphasize breaking the patronage-based link between political leaders and election-manipulating agents, and enhancing local risks through broad-based local contestation and investments in critical media and independent courts.

Lastly, while sensitivity to local political conditions is important both for theorizing about and measuring electoral manipulation, this theory is cross-regional. For it to be applicable, it requires only that patronage networks exist that can deliver resources to election-manipulating agents, and that there be some degree of risk—in some part of the country, at least—that such agents might be publicly exposed and face criminal or civil penalties. The first criterion tends to limit the theory's ability to explain behavior in economically advanced democracies, while the latter often rules out the most politically closed electoral authoritarian regimes. As a result, the explanatory power of the theory is best suited to countries ranging from the hybrid regimes to new or unconsolidated democracies. In the current period, this is one of the largest families of regime. Of the countries with multiparty electoral regimes in 2014, 46 fell into this middle range—essentially the size as the

group of more consolidated democracies, which numbered 48.[7] As such, this project aims to make a significant contribution to our understanding of electoral behavior in a broad class of states, which are reflected in the three cases selected for investigation: democratizing Mexico, more authoritarian Russia, and hybrid Ukraine.

1.5 Chapter outline

The following chapters test this theory under different levels of patronage consolidation, and in different social and political contexts. In Chapter 2, evidence from Russia is presented to show that patronage consolidation and local constraints have an interactive relationship with electoral manipulation, even in a relatively authoritarian setting. As patronage consolidation increases, election-forensic analysis shows that falsification (a centralized tactic) become more likely in low-constraint regions of Russia, but not in high-constraint regions. In the latter regions, instead, more dispersed forms of manipulation increase in severity. Qualitative evidence from field interviews is also highlighted.

Chapter 3 presents the results from Mexico. In this chapter, levels of falsification and overall manipulation are estimated, and then analyzed using logit models and a difference-in-difference model, respectively. This chapter shows that falsification benefiting the opposition Partido Acción Nacional (PAN) becomes more likely in regional PAN strongholds, even as falsification becomes more difficult for the declining PRI. This provides a useful test of the theory: deconsolidation of PRI-based patronage allows the PAN to capture some patronage resources, and convert those resources into falsified results in regions where PAN domination makes the risk of local exposure low.

The difference-in-difference model compares overall levels of electoral manipulation across two adjacent states with similar socioeconomic profiles but different political trajectories. In the state of Durango, the PRI has maintained unbroken control of the state government, while in neighboring Nayarit, the PAN and PRI have alternated control. The results of the model indicate that evidence of manipulation is statistically and substantively significantly lower in Nayarit—where opposition contestation creates higher local constraints—than in Durango. The results demonstrate the changes

[7] These are the author's calculations based on the countries contained in the V-Dem 7.1 dataset. The group of mid-range countries was determined by scores on the Polity index greater than -8 and less than 8, while those with a score of 8 or higher were counted as established democracies.

in local competitiveness can drive shifts in manipulation patterns, holding levels of patronage consolidation constant. The next chapter, focused on Ukraine, tests the reverse proposition.

Chapter 4 returns to the post-Soviet space by analyzing patterns of electoral manipulation Ukraine. As in Chapter 3, the Ukraine chapter also examines falsification (using a vote-share test) and evidence of overall manipulation (using a turnout test). The results show that electoral manipulation in Ukraine is unusually deflationary; that is, parties emphasize tactics that reduce their opponents' vote-shares rather than those that inflate their own totals. The election-forensic evidence in this chapter indicates that Ukraine's pro-Eastern parties have been victims of such deflationary techniques in regions where risks to opposing agents are low. Ukraine's crisis-driven political history over the last two decades allows for tests of how this pattern responds to significant shifts in patronage consolidation. When the pro-eastern Party of Regions was able to gain consolidated control of the instruments of patronage, evidence of deflationary manipulation in western regions all but disappears. However, agents appear to have quickly shifted their allegiance to pro-western networks in the aftermath of the Euromaidan revolution and the conflict in Donbass; evidence of deflationary manipulation against pro-eastern candidates increases significantly during that period, especially in pro-eastern regions. This chapter helps demonstrate the contributions of the consolidation and constraint model of electoral manipulation presented here versus the local-information model of Rundlett and Svolik (2016), which makes predictions contrary to these findings.

Finally, Chapter 5 draws on survey-experimental data to show that risks to agents (rather than the risk of protest faced by principals) are what drives the election-forensic patterns identified in the preceding chapters. In particular, vignette- and list-based experiments suggest that supporters of the largest parliamentary opposition party (the Communist Party of the Russian Federation) were more likely to support harsh punishment for election-manipulation agents in competitive elections than were supporters of the ruling party, while they were not more likely than ruling-party supporters to favor post-election protest. This is presented as evidence that the observed shift away from easily monitored forms of electoral manipulation (like falsification) in more competitive regions is driven by agents' fear of punishment in regions where opposition parties are relatively active, rather than principals' fear of protest. That is, the ruling party's own supporters are shown to be just as likely to support protest against manipulation, suggesting that there is little benefit in shifting observable manipulation to friendlier territory.

CHAPTER 2

Centralized and dispersed manipulation in Russia

During the 2011 Russian legislative election campaign, the city manager of Izhevsk, a regional capital, was filmed while speaking to a meeting of local veterans' groups. In the video, city manager Denis Agashin speaks bluntly about the rewards the veterans can expect if they contribute to the ruling party's victory in the polls. 'If the party receives less than fifty percent of the vote in your district,' Agashin declares, 'that means nothing will change. . . .If the party receives between 50 and 54 percent, we will fund [the local veterans' groups] with 500,000 rubles.' Agashin went on to add rewards for even more specific targets up to 1,000,000 rubles for a 60% vote-share.[1] Despite multiple efforts by opposition parties to bring political and criminal penalties against Agashin[2], he was largely protected from punishment by the local dominance of the ruling party, United Russia's. Others have not been so fortunate. For example, in 2009 a district court in Saratov oblast levied a 200,000 ruble fine against the chair of a precinct election commission for falsifying votes in favor of United Russia; still others have received suspended prison sentences.[3] Such punitive outcomes are not uncommon even in a relatively closed case like Russia: after the 2016 legislative election, the Russian Central Election Commission reported 32 criminal cases related to electoral manipulation, in addition to approximately 1,000 administrative cases and 300 fines (Tikhonova, 2016).

These anecdotes illustrate the personal risk undertaken by those who actually tamper with elections, an aspect of manipulation that has been largely overlooked by research that emphasizes the costs and risks borne by political leaders (Simpser, 2013; Magaloni, 2010; Ziblatt, 2009; Hyde,

[1] See `http://www.newsru.com/russia/30oct2011/agashin.html` for a summary of the event, and the video clip.

[2] These included efforts to remove him from office, and pressure on the regional prosecutor to bring criminal charges. See `http://www.dayudm.ru/article/51302/` (Russian) for details.

[3] A website for the Honest Elections Public Council, a Kremlin-approved non-governmental agency, maintained a list of dozens of other incidents of arrests, administrative charges, and criminal proceedings against individuals who have allegedly helped manipulate an election. The organization and website are now defunct, but an archive is available at `https://web.archive.org/web/20170809084414/http://www.chest-vibor.ru/chronicles/`.

2011). A recent principal-agent model of electoral manipulation addresses this gap, by highlighting risks faced by agents if their patron loses the election. However, this emphasis on the risk of electoral defeat does not account for evidence that shows illegal electoral manipulation tactics are often used as substitutes, with one tactic increasing in severity as another declines (Harvey, 2016; Kuo and Teorell, 2017; Sjoberg, 2013). In particular, some forms of manipulation stubbornly persist even as the risk of patron defeat increases along with growing levels of competition and democratization (Asunka et al., 2017; Van Ham and Lindberg, 2015).

The model presented here helps reconcile these findings by arguing electoral defeat for their patron is not the only risk that agents face. Instead, local political conditions—like active opposition parties or independent courts—can make participation in electoral manipulation costlier for agents, even if their patron remains in power, by increasing the local risks of exposure and political or criminal penalties for the perpetrator. However, agents can insulate themselves from local risks by engaging in forms of manipulation that are harder to observe and trace, such as vote-buying and voter pressure, which helps explain the persistence of these tactics even as political competitiveness increases. These hypotheses are supported by election-forensic analysis of two types of electoral manipulation, using electoral data from more than 90,000 precincts in each election year, across Russia's eighty-plus regions during six national elections from 2003-2012.

This article makes several contributions to existing research. First, it adds to a dynamic literature on the function of democratic institutions in authoritarian contexts. The modal authoritarian regime today is one that has adopted democratic institutions like multi-party elections (Levitsky and Way, 2010; Magaloni and Kricheli, 2010). Researchers have investigated the benefits that elections can provide for incumbents in authoritarian systems, by revealing information (Brownlee, 2007), co-opting the opposition (Gandhi and Przeworski, 2007), distributing spoils (Blaydes, 2011), and testing the competence and loyalty of party subordinates (Reuter and Robertson, 2012). More recent works, including this paper, build on this literature by probing the underlying mechanics of authoritarian elections, and the conditions that make them likely to succeed or fail in propping up incumbents (Donno, 2013; Frye et al., 2014; Reuter and Robertson, 2015).

Second, it addresses an ongoing debate over a central question in the study of authoritarian elections: why are some elections manipulated more severely than others? There have been a number of efforts to understand the causes of this variation: as signaling efforts by dominant ruling parties

(Simpser, 2013), as a response to opposition strength (Magaloni, 2010), and as a function of state patronage (Greene, 2007), domestic institutional design (Birch, 2007), or socioeconomic structures (Frye et al., 2014; Nichter, 2008; Stokes, 2005; Ziblatt, 2009). One of the best current explanations for variation in the severity of electoral manipulation is a formal model provided by Rundlett and Svolik (2016), referred to hereafter as the incumbent-popularity model. However, these models generally treat electoral manipulation as a single tool, rather than a family of substitutable techniques as recent empirical work (cited above) has shown. The results presented here demonstrate that the central mechanism of the incumbent-popularity model—local information about incumbent popularity—is incomplete without taking into account incumbent's broader patronage resources. Furthermore, they show that local conditions do more than convey information about an incumbent's national popularity, but can actively constrain ruling parties' options. Contrary to the predictions of the Rundlett and Svolik model, I find no relationship between levels of manipulation and incumbent approval rating, and show that extensive manipulation may still occur in highly contested areas so long as the effort relies on harder-to-detect forms of manipulation. This has three implications for understanding electoral manipulation.

First, cleaner elections will not necessarily follow from declining incumbent popularity if she is able maintain control over patronage resources. A prominent example of this dynamic would be the 1996 presidential election in Russia, in which the deeply unpopular Boris Yeltsin was able to muster the support of a patronage network consisting of oligarchs and regional power brokers and generate enough clientelistic support and electoral manipulation to win a second term (Hale, 2014, pp. 135, 267; Myagkov et al., 2009). Second, by showing that less attributable forms of manipulation are less susceptible to agency loss than other techniques, it offers an explanation for the persistence of manipulation in more competitive settings as long as patronage resources are consolidated by the incumbent (see also Greene (2007)). Finally, it highlights the important role that civil society groups and opposition parties can play in shaping patterns of electoral manipulation at the subnational level, in contrast with the incumbent-popularity model's focus on national conditions; this subnational focus complements previous work on opposition effects at the national level (Bunce and Wolchik, 2010) and helps interpret recent dynamics in Russian politics.

2.1 Principals, agents, and electoral manipulation

Electoral manipulation refers here to illegal efforts to influence the outcome of an election, including activities like vote-buying and tampering with election returns, but excluding legal mechanisms of biasing election results. Electoral manipulation has a variety of benefits for candidates and leaders: it can send a signal about the ruling party's organizational capacity and staying power to other political actors (Gehlbach and Simpser, 2015; Simpser, 2013), and can induce ambitious politicians to join with the ruling party and help prevent elite splits (Magaloni, 2006), leaving opposition parties to recruit from a pool of relatively extreme ideological activists (Greene, 2007). Despite these benefits, there is wide variation in the severity of electoral manipulation (Simpser, 2013).

Previous research has identified a variety of factors that affect the prevalence of electoral manipulation, including inequality in wealth and power (Lehoucq and Molina, 2002; Ziblatt, 2009), poverty (Nichter, 2008; Simpser, 2013; Stokes, 2005), education levels (Kitschelt and Wilkinson, 2007), and urbanization (Birch, 2011; Domínguez and McCann, 1998; Lehoucq and Molina, 2002). Additionally, dense ethnic networks can make manipulation more appealing, by easing the monitoring of voters and reducing the likelihood that misdeeds will be exposed (Goodnow et al., 2014; Hale, 2007), while population size is negatively correlated with tampering (Lehoucq and Molina, 2002; Nichter, 2008; Simpser, 2013). Corruption levels (Birch, 2011) and electoral system design (Birch, 2007) also influence manipulation.

The competitiveness of the electoral environment has been identified as a central factor in several theories, first a positive driver of manipulation (Argersinger, 1985; Lehoucq, 2003; Lehoucq and Molina, 2002; Ziblatt, 2009). However, Simpser (2013) convincingly argues that ruling parties with few constraints and large resource advantages engage in excessive manipulation in uncompetitive environments as a signal of dominance. While this argument helps explain the puzzle of excessive electoral manipulation, its implications are less clear for cases in which dominant ruling parties fail to deliver excessive manipulation; principal-agent models can offer an explanation.

Unlike many prior formal-theoretic models of electoral manipulation (Gehlbach and Simpser, 2015; Little, 2012; Magaloni, 2010), Rundlett and Svolik (2016) devise a formal principal-agent and collective-action model of electoral manipulation in which manipulation is deterred not by leaders' fear of protest but by front-line agents' fear or punishment. Their approach usefully addresses both

excessive manipulation and under-production of manipulation by strong governments. However, it has two main limitations, which this paper addresses. First, the model assumes that all forms of electoral manipulation are equally subject to principal-agent problems. However, electoral manipulation tactics are known to shift in response to changes in the local environment. For example, the presence of election monitors has been shown to lead to increases in harder-to-observe tactics such as voter pressure and covert spending to help favored candidates (Simpser and Donno, 2012; Beaulieu and Hyde, 2008), along with increased falsification in unmonitored precincts (Sjoberg, 2013). Likewise, increased local competitiveness is associated with more vote-buying and voter pressure, and less administrative fraud (Harvey, 2016). The incumbent-popularity model does not account for these differences, since it predicts that all types of electoral manipulation should rise and fall with the leader's popular support.

Second, the assumption that agents' local political environment serves only as a signal of the principal's unknown national popularity obscures two important features of electoral authoritarian politics: that an incumbent's popularity is only one aspect of her overall likelihood of retaining office (Gerschewski, 2013), and that local politics in some regions can be sufficiently open and competitive as to meaningfully constrain the ruling party's freedom of action (Belokurova and Vorob'ev, 2011).

In short, the model advanced by Rundlett and Svolik (2016) is a significant step forward in understanding electoral manipulation, but the underlying mechanisms driving the model cannot account for observed local variation in manipulation tactics. The following theory addresses this puzzle by tying local risks to the type of manipulation employed by agents, and by broadening the conception of the incumbent's staying power to include patronage resources rather than popularity alone.

2.2 Theory and hypotheses

For the purposes of this paper I consider a principal to be a national-level executive or party leader, while agents are the front-line individuals tasked with directly influencing election results by illegal means. As a result, I refer to principal-level effects as national, and agent-level effects as local. I argue that, while principals benefit from increased electoral manipulation, agents' willingness to manipulate elections is conditional on two broad factors: the national consolidation of the patronage network the principal controls, and the local-level constraints faced by the agent. These two factors interact to influence agent behavior. When patronage networks are consolidated, agents have a strong

incentive to participate in electoral manipulation on behalf of the dominant network; however, local factors like high partisan contestation can make engaging in manipulation risky for agents. Agents can reduce their exposure to local risk by shifting to harder-to-trace forms of electoral manipulation like vote-buying or voter pressure, rather than more easily monitored and traced activities like falsification.

In order to reap the benefits of electoral manipulation, political candidates must rely on large networks of agents to affect the results. These networks are usually pyramidal, with actors at each level responsible for overseeing a larger number of actors at the next level down (Auyero, 2007; Hale, 2014). Political candidates' dependence on agents raises the possibility that agents' may not always behave as the boss might prefer (Rundlett and Svolik, 2016).

Political principals can benefit directly from electoral manipulation (Greene, 2007; Magaloni, 2006), since it improves their chance of winning close elections (Lehoucq and Molina, 2002), and widens the margin of victory (Simpser, 2013; Gehlbach and Simpser, 2015). By contrast, agents do not directly benefit from each manufactured vote they generate. Instead, agents perform their assigned tasks in order to remain embedded within a principal's patronage network. For example, Russia's primary election-monitoring group recorded numerous incidents of voters being pressured to support the ruling party by their employers during the 2011 election. The following example is representative:

> At Kindergarten No. 620 [in St. Petersburg], a meeting was held in which employees were compelled to take absentee ballots in order to vote on school grounds. It was said that otherwise the district would be cut off from funding, but that voting by absentee would be rewarded with cash bonuses and time off. ... It was pointed out that [Duma] Deputy S. Shatunovskii (a member of United Russia) had done a lot for the district and it was necessary to support him (Golos 2011).

As the anecdote illustrates, local school administrators pressured their employees with the risk of job loss and the promise of bonuses, in order to remain within the ruling party's patronage network. This sort of voter pressure / vote-buying is common in sectors that rely on state patronage for their success (Frye et al., 2014). Other forms of manipulation which rely more directly on state actors, such as ballot-stuffing or falsification of results, are also carried out in order to retain access to patronage. Principals in electoral authoritarian regimes tie access to the state and its associated opportunities for rents and patronage to electoral success (Diaz-Cayeros, 2006; Lust-Okar, 2006;

Reuter and Robertson, 2012, 2015), and can use the same resources to penalize opponents (McMann, 2006). This creates a powerful incentive for local agents to boost the principal's vote-share by whatever means are available, including misuse of the election administration apparatus, in order to remain within the privileged network.

However, if the principal appears less likely to control access to patronage due to electoral defeat or intraparty rivalry, her offer of post-election patronage will appear less viable to agents, reducing their incentive to work on her behalf (Hale, 2006). Following Hale's (2014) conception of 'patronal politics,' I argue that a principal's ability to credibly promise post-election patronage is contingent on the share of resources controlled by her patronage network, relative to those of potential rivals.[4]

When one patronage network controls a large share of resources, agents have a strong incentive to support the principal: access to rents and resources outside that network is limited, competing offers of patronage by opposition figures are necessarily discounted, and punishment of defectors by exclusion from the network seems assured (Hale, 2014). In a society characterized by multiple patronage networks, by contrast, the credibility of an individual principal's offer is contingent on the likelihood that the principal will win the election or leadership struggle. As a result, clients 'hedge their bets or pin their hopes on different networks in an uncoordinated fashion' (Hale, 2014, p. 72). Consequently, agents are more strongly incentivized to participate in electoral manipulation efforts when patronage networks are more consolidated.

However, conditions at the agent's level can constrain agents' ability to engage in manipulation, by increasing the risk of exposure and punishment, even if the principal's access to patronage appears secure. Local agents are valuable to principals in part because of their deep knowledge of their local environment, which better enables them to monitor voters, distribute clientelistic benefits, or otherwise alter election results (Frye et al., 2014; Zarazaga, 2014). However, this local knowledge also allows agents to make strategic judgments about the level of local risk involved in manipulating an election. In more competitive settings, local agents have an 'exit option,' and may stop mobilizing voters or switch parties if the status quo becomes too risky (Stokes et al., 2013, pp. 121-126). A variety of political factors influence local risk. For example, when opposition parties have limited

[4]This corresponds to Hale's (2014) conceptualization of "single-pyramid" and "multiple pyramid" patronage systems (p. 10).

or no representation on election commissions, pro-incumbent manipulation is easier to accomplish and harder to expose (Kovalov, 2014; Bader, 2012; Calingaert, 2006). The presence of election monitors deters election-day forms of electoral manipulation (Hyde, 2011; Sjoberg, 2013), and makes it more likely to be exposed (Kelley, 2012). Monitors are more likely to be present in politically open territories (Buzin et al., 2016), and more likely to be effective in more competitive districts (Asunka et al., 2017). In cases where a dominant party machine exercises control over regional courts, opposition party figures are less likely to pursue complaints in regional courts (Popova, 2006), reducing the risk to agents of engaging in manipulation. Even authoritarian regimes may allow lower courts to remain somewhat independent, in order to reduce corruption, increase investment, and enhance regime legitimacy (Moustafa and Ginsburg, 2008). In turn, these courts sometimes act to redress low-level electoral violations. For example, Popova (2012) finds that district courts in Russia were more likely to hear election-related cases in competitive districts, and that pro-government candidates were not systematically more likely to win than pro-opposition candidates (pp. 94-95). By increasing risks to agents, local constraints affect the relative value of a principal's offer of patronage; a particular patronage offer may be sufficient to convince an agent to engage in manipulation in a local setting where constraints are low, but insufficient in cases where constraints are higher. As a result, the interaction of patronage and constraints affects the level of manipulation observed.

Qualitative evidence indicates that this effect is not purely driven by leaders' fear of losing legitimacy. Exposed agents can face punishment, even in relatively uncompetitive regimes in which incumbent leaders retain power. A report on the punishment of election commissioners for violations of the election law from 2009 to 2015 in Russia found that, while most infractions are punished by small fines, significant punishments could be brought in cases with sufficient local political pressure (Golos, 2015). In some cases recorded by the monitoring group, election commissioners were found guilty of criminal offenses and faced stiff penalties, including fines of over half an average annual salary.

In addition, I conducted field interviews during the autumn of 2015 also provide first-person accounts of the importance of patronage consolidation and local constraints in determining the severity of electoral manipulation. Given the political context in Russia during this time period—in which civil society groups like Golos and the Levada Center were being branded as foreign agents for accepting Western funds—respondents were understandably reluctant to discuss electoral manipulation with

an American researcher, even when assured of anonymity.[5] Nevertheless, I conducted roughly a dozen semi-structured interviews with election-monitoring organizers, academics, election monitors, and precinct election commissioners.

On the subject of local constraints, one election monitor made the following representative comment, when asked how electoral manipulation could be reduced by regional authorities:

> The [local] administrations still have lots of United Russia representatives, school directors, and so on. A governor can't change this structure quickly, even if he wants to. It requires lots of work and attention. He can't change the overall structure of the electoral commissions, which are mostly representatives of the state. This would be better if there were more representatives from parties and civil society on the commissions. The system here doesn't work. By the system, I mean journalists, courts, and punishment for manipulators.

An academic expert highlighted the importance of local constraints by noting the success of election monitoring during a gubernatorial election in Irkutsk, in which the Communist Party candidate won—a first since the reestablishment of gubernatorial elections.

> In the recent gubernatorial election in Irkutsk, KPRF deputies from the State Duma monitored the election, people with national clout. They were able to engage in a highly concentrated monitoring effort, which can't be done at the federal level. And this was successful.

The significance of the consolidation of patronage resources was a constant theme. One election monitor said the following:

> Administrative resources are not part of the parties, per se, they exist independently– they're part of the structure. The structure stays mostly the same, even if the parties change (for example, the staffs of the electoral commissions). The power vertical is too well constructed. . . . Manipulation requires administrative resources to work, and the security forces are used to punish illegal agitation. Without financing from the gray / black budget, it doesn't work. If administrative resources exist, then manipulation exists.

Another expert put it this way:

> In the 2011 election, why was the outcome worse than expected for the ruling party? Weak governors couldn't produce good outcomes. There was a lack of trust in the

[5] Also around this time, Western researchers were not infrequently being expelled from Russia and given multi-year bans from entering the country, even when they were not studying politically sensitive subjects.

political elite, which made local actors less likely to believe they will be protected by those above them.

In sum, a greater local risk of exposure and punishment can make participating in manipulation less appealing to agents. However, this effect does not mean that incumbents are unable to find agents willing to manipulate elections in competitive, monitored localities; instead, agents can choose to engage in forms of electoral manipulation that are more difficult to observe and trace back to perpetrators. Agents who engage in forms of manipulation that take place in in the polling center or the election administration are more exposed to local risks, since these activities are easier to observe and to attribute to their perpetrators. These forms of manipulation are usually carried out by agents who occupy a public, official position in the election administration and/or political parties (Birch, 2011, p. 61). Election commissioners, for example, have a variety of means by which they can influence election results. However, discrepancies are easily traced back to them, especially when there is political and legal pressure to do so. By contrast, forms of electoral manipulation that are more dispersed—like vote-buying and voter-pressure—are harder to observe and to trace back to organizers, who may be employers (Frye et al., 2014), neighborhood brokers (Stokes et al., 2013), and other non-state actors (Mares and Young, 2016). Unlike more centralized tactics, partisan and civil-society monitors do not know where and when to look for these activities, making them more difficult to trace than direct manipulation of the election administration (Birch, 2011). For example, a Russian NGO report finds that the phrase 'unidentified persons' arises frequently in criminal cases against election commissioners, to designate the shadowy individuals who coordinate multiple-voting rings, and pay or intimidate commissioners to influence the vote. Lack of evidence means these unidentified persons are rarely called to account (Golos, 2015). This is not to say that vote-buying, voter pressure, and related tactics are impossible to detect. Rather, the nature of this kind of clientelistic exchange—in which brokers often know their clients directly, can exercise their political influence in clients' day-to-day life, and benefit from either an asymmetrical power relationship (Frye et al., 2014) or a sense of trust (Kramon, 2016)—makes these techniques harder for monitoring organizations to expose.

An objection might be raised: do agents in competitive circumstances have an incentive to work especially hard for their principals, in order to deliver as many votes as possible and possibly keep the boss in office? This could be true in exceptional circumstances, but in most cases the number

of votes that any individual agent can influence has a negligible effect on the overall result. This creates the coordination problem identified by Rundlett and Svolik (2016). As the election becomes more competitive, the efforts of more agents are necessary to secure victory; at the same time, the diminishing prospect of success makes it less likely that so many agents will in fact cooperate.

Finally, manipulation on a national scale can be very expensive, and principals' resources are not limitless. Even relatively cost-effective tactics like co-opting employers to pressure voters requires monitoring efforts and rewards for compliant businesses (Frye et al., 2014, p. 207). Agents and brokers engaged in falsification or other types of manipulation must still be organized and compensated (Langston and Morgenstern, 2009). Vote-buying, however, is especially costly (Lehoucq and Molina, 2002; Wang and Kurzman, 2007), and such efforts become increasingly expensive as competitiveness increases (Corstange, 2018). As a result, incumbents are likely to prefer centralized forms of manipulation in low risk areas, due to their cost-effectiveness. This pattern has been documented both domestically in Russia (Harvey, 2016) and cross-nationally (Van Ham and Lindberg, 2015).Consequently, if higher local constraints make agents less willing to tamper with elections in administrative ways, principals may find agents both more expensive to hire (as they turn toward vote-buying and similar tactics) and more likely to shirk their duties on election day (as they become harder to monitor). This limits the ability of principals to compensate for higher competitiveness by boosting payments for agents.

In summary, national patronage consolidation attracts election-manipulating agents, but this attraction must be weighed against risks created by local political conditions. Agents are more willing to tamper with elections when incumbent's control of patronage appears more secure. However, where local constraints are high, agents engage in harder-to-trace manipulation in order to insulate themselves from the risks of exposure. Since cost-efficient manipulation by election administrators does little to protect agents from exposure, they are more willing to perform activities like falsification in places where local risks are already low. Two testable hypotheses can be drawn from this theory. A third hypothesis tests the corresponding prediction from the incumbent popularity model.

> Hypothesis 1: Higher local constraints will be associated with more vote-buying and voter pressure as patronage consolidation increases.
>
> Hypothesis 2: Lower local constraints will be associated with more falsification as

patronage consolidation increases.

Hypothesis 3 (incumbent popularity): Increases in the principal's national approval rating will be associated with higher levels of falsification, vote-buying, and voter pressure, especially in regions where the ruling party is popular.

2.3 Case selection: local and national political conditions in Russia

Russia provides an excellent case with which to test the theory. The country is large and diverse, with wide variation in socioeconomic variables across its 80-plus regions. There is also wide variation in local political opposition, with the ruling party's margin of victory in the 2011 election ranging from one percentage point in the most competitive regions to 99 points in the least. National patronage consolidation has increased on average during the time period covered here, as regional power centers and oligarchic clans lost influence relative to the Kremlin. This evolution of the national political system, combined with a diversity of local political environments, provides ample opportunity to study agents' behavior under different conditions. In addition, Russia provides a tough test for the theory. If the principal-agent dynamics proposed here can be detected in Russia, a case where patronage consolidation is relatively high and local constraints are relatively limited in the broader comparative context, principal-agent problems may be even more prevalent in less authoritarian hybrid regimes.

Institutional reforms, organizational investments in the ruling party, strong economic growth, pressure on outside elites, and consistently high approval ratings for Putin himself strengthened the president's position as the country's chief patron. In the 2008 presidential election, the Kremlin successfully performed the transfer of the presidency from Putin to his chosen successor, Medvedev, while Putin took up the role of prime minister. However, as the 2011 Duma and 2012 presidential elections approached, tensions began to appear in the 'tandem-ocracy'. Commentators began to consider Medvedev and Putin as representatives of 'liberal' and 'conservative' factions in the elite (Black, 2014). Speculation about which of the two would run for the presidency in 2012 continued until September 2011, when Medvedev urged the United Russia party conference to endorse Putin for that office. This announcement, and its apparent disregard for the public's role in the matter, exacerbated divisions in the elite, exemplified by the resignation of long-serving finance minister Alexei Kudrin (Butrin et al., 2011). In this context, United Russia won only forty-nine percent of

the vote and lost more than seventy seats in the Duma—a major setback. In addition, the election prompted widespread allegations of manipulation and large protests in many Russian cities (Buranov et al., 2011). Since beginning a third term, Putin has re-established the single-pyramid structure of patronage in Russia, after a modest fracturing during his years away from the presidency (Hale, 2014, pp. 267-291).

2.4 Data and measures

In order to test the theory, it is necessary to estimate two types of electoral manipulation: easier-to-monitor administrative falsification and harder-to-monitor vote-buying / voter pressure. To do so, I employ the same techniques used by Harvey (2016) to measure vote-buying/ voter-pressure and falsification. I use these methods to estimate the level of both types of electoral manipulation in each of Russia's subnational regions, per election-year. These models draw on electoral data at the precinct level (more than 90,000 precincts in each election), while second-stage models incorporate control variables at the regional (83 regions) and election-year levels (6). In both sets of models, I include socioeconomic control variables to incorporate local context (Myagkov et al., 2009) and reduce the risk of false positives (Deckert, 2013).

The digits-based test proposed by Beber and Scacco (2012) is useful for estimating falsification of results by election officials (Weidmann and Callen, 2013; Sjoberg, 2013; Cantú, 2014; Skovoroda and Lankina, 2017). To estimate one form of manipulation by formal agents—falsification of results—I conduct chi-square tests for the uniform distribution of trailing digits for the ruling party and the second-place finisher in each region per election-year. In an election without administrative fraud, the trailing digits for each party should be roughly evenly distributed from 0 to 9. I test for deviations from the uniform that are statistically significant at the .05 level for both parties ; the binary variable any fraud is marked as 1 if either party's results are significantly non-uniform, and 0 otherwise. This variable is used as the dependent variable in a second-stage logit model. This approach measures falsification of results only; it does not measure behaviors like stuffing the ballot box with pre-filled ballots (Sjoberg, 2016).

With regard to vote-buying and voter pressure, I use a modified version of the turnout-based measure proposed by Myagkov et al. (2009) by comparing the share of votes cast by absentee to the ruling party's absolute vote-share across precincts using a first-stage multilevel model (see also Moser and White (2017)). Since absentee ballots are used to facilitate vote-buying, workplace

mobilization, and multiple voting (Golos, 2011; Frye et al., 2014; White, 2011), a larger positive correlation between the share of absentee ballots and United Russia's absolute vote-share is more indicative of these kinds of manipulation (especially after controlling for demographic factors that might affect honest use of absentee ballots). The regression coefficient linking absentee voting and ruling-party vote-share is used as the dependent variable in a second-stage feasible generalised least squares (FGLS) regression to account for the fact that the dependent variable is itself a regression estimate (Lewis and Linzer, 2005).

2.5 Explanatory variables: local political constraints

I operationalize local constraints, first, by using a measure of *local partisan opposition*. I include two additional measures in the appendix: expert ratings of the *openness* of the local political environment to social and political activity, and a dummy variable recording whether a region is a titular *ethnic republic* within the Russian Federation. Local opposition is constructed by finding United Russia's margin of victory proportional-representation portion of the most recent regional legislative election prior to the national election at hand (that is, the measure is lagged and taken at a lower administrative level). In rare cases where United Russia lost the regional election, its margin of victory is negative. I subtract the margin of victory from one, so that higher values correspond to a larger opposition presence. However, regional legislative election results are not available prior to the 2004 national election. In order to include data from 2004 and 2003, I rely on the margin of victory in gubernatorial elections.[6][7]

It may be objected using margins of victory in one election (regardless of the timing and level) to explain electoral manipulation in another election introduces a problematic level of endogeneity to the analysis. I use the variable for two reasons. First, it captures the ability of opposition parties in

[6]Similarly, the results of gubernatorial elections cannot be used for all elections, since Russia abolished gubernatorial elections between 2005 and 2012.

[7]There is a clear difference between the two types of elections that affects the value of competitiveness when measured in this way. The proportional nature of legislative elections allows more parties to be competitive, systematically narrowing the margin of victory in these elections. By contrast, the winner-take-all nature of the election tends to make these elections two-way contests, possibly producing wider margins of victory. To account for this difference, I first center and scale each variable according to its variance before combining them. The distribution of these variables is sufficiently similar that the benefit of being able to make use of the data from the 2003 and 2004 elections in the study outweighs the cost of combining them in this fashion. Histograms for the raw and scaled data are available in the appendix.

the regional legislature to criticize the regional administration, to mobilize supporters, to influence regional election commissions, and to divert patronage resources away from the ruling party—all of which are constraints that make pro-regime manipulation more difficult. Second, the empirical strategy uses local opposition to predict levels of two distinct types of manipulation, not the level of overall manipulation or United Russia's success in national elections. In other words, while it is true that a wide margin of victory in a regional election may be indicative of a high level of manipulation in that election, and thus be uninformative about the overall level of electoral manipulation in a federal election in the same territory, it says nothing about the type of manipulation that may have been used—which is the dependent variable of interest. Finally, as robustness checks, I include two non-electoral measures of local constraints in the appendix, discussed above. Both of these variables produce results that are substantively similar to those presented here.

2.5.1 Explanatory variables: national consolidation

A variable like patronage consolidation is not easily visible; the concept describes informal networks of responsibility between patrons and clients, and the degree to which patrons must compete among themselves for the service of clients. Measures like GDP, GINI, or the oil price may capture the wealth of the overall patronage system, but not the interaction of competing networks within the system (Hale 2014, p. 33). A measure of the number of presidential loyalists in cabinet positions, for example, would likewise represent only a partial picture; loyalty is difficult to observe, and loyalists may also be stationed in major industries, important governorships, and in the security ministries. Instead, I use the variable *UR governors share*, which indicates the percentage of regional governors formally affiliated with the ruling party, United Russia. This variable captures the gradual consolidation of regional political machines under the influence of the Kremlin during the time period covered, as previously independent politicians joined the party and brought their autonomous political machines into the fold (Reuter, 2010, 2013). While this measure may not be universally applicable, United Russia's importance as a political party is largely tied to the ability of its high-ranking members to channel patronage resources to their clients (Remington, 2008; Reuter and Remington, 2009; Turovskii, 2010). Over time, the measure ranges from .28 in 2003 to .66 in 2012. As a robustness check in the appendix, I also use a measure of centralized executive power from the Polity dataset. To test the implications of the incumbent-popularity model of manipulation, I use the average approval rating of Vladimir Putin in the three months before the election, gathered

in representative nationwide polls conducted by the independent Levada Center, a respected Russian polling organization.

2.5.2 Control variables

Several socioeconomic variables are known to influence the likelihood and severity of electoral manipulation, and are included in all models. In addition, some control variables must be included in order to account for potentially non-manipulative explanations for suspicious patterns in the electoral data. Including these variables is also important since limited within-region variability during the ten years covered here makes a fixed-effects model less useful. I discuss these variables below. All socioeconomic controls are taken from the Russian Federal State Statistical Service.

Since large populations may be more difficult to control and require more resources to manipulate, I include a measure of the *population size* in each region. The number of *pensioners* per 1,000 residents in a region is included, since many pensioners are directly dependent on the state for their livelihoods and may be easier to pressure into voting for the ruling party (a problem that is particularly acute for residents of homes for the elderly). Additionally, pensioners may be disposed to vote as a group for or against government candidates (Colton and McFaul, 2003; Hemment, 2009). Poverty is well known to affect individuals' susceptibility to vote-buying efforts and other forms of clientelism (Kitschelt and Wilkinson, 2007; Stokes et al., 2013). Consequently I include a measure of the percentage of the population falling below the official poverty line. A similar logic applies to the unemployed; I include a measure of the official unemployment rate for each region. Researchers have found mixed effects for the degree of urbanization on electoral manipulation, and so I include a measure of the percentage of a region's population living in cities.

Higher levels of education among the population should make vote-buying and similar forms of manipulation more difficult. As a measure of the level of education among the population of a region, I include the number of individuals with *higher education* (bachelor's degrees and above) per 1,000 residents. Since they owe their employment to the state, *government employees* may be more vulnerable to political pressure than ordinary voters (Kitschelt and Wilkinson, 2007). I include a measure of the size of government in each region by adding the number of employees of the regional and local governments, and dividing by 1,000 residents. Finally, I include a dummy variable to control for *presidential elections*, which may produce higher levels of manipulation due to their high stakes for incumbents (Simpser, 2013).

To my knowledge, the correlates of 'honest' voting by absentee in Russia have not been tested. However, several of these variables are also plausible controls for non-manipulative absentee voting. Use of an absentee certificate allows an individual to vote in person at a precinct other than where they are registered, meaning that a more mobile population is likely to generate more honest absentee ballots. Large urban centers might draw more economic migrants and generally foster more internal movement, as may regions with a more highly educated population, while pensioners may be less likely to find themselves outside their precinct on election day.

2.6 Results and discussion

The results of the second-stage models, which use any fraud and absentee coefficient as dependent variables, are presented in Tables 2.1 and 2.2. These results are supportive of Hypothesis 1 and 2. At low levels of national consolidation, there is no statistically significant difference between low- and high-constraint regions in levels of either falsification or vote-buying / voter pressure. As patronage networks consolidate, the incentive to manipulate is expressed differently based on the degree of local constraints. More falsification is observed in low-constraint regions, while more vote-buying / voter pressure is seen in high-constraint regions. Hypothesis 3, which tests the incumbent-popularity model, is not supported. Models 1 and 4 provide a baseline by using control variables only. The remaining models use local opposition as a measure of local constraints, interacted with UR governors share or Putin approval. The unit of observation in the models is the region-year.

Model 2 shows that the interaction of local opposition and consolidation of patronage via United Russia significantly influences the level of administrative fraud observed. To better interpret the interaction effect, Figure 2.1 depicts changes in the marginal effect of local opposition on falsification as the level of patronage consolidation increases. As the figure shows, local opposition has a negative marginal effect on falsification at higher levels of patronage consolidation, indicating that falsification is more severe in less competitive regions (Hypothesis 1). As predicted, increases in the predictability of post-election patronage drive falsification upward in areas where agents are locally unconstrained, but not in areas where local constraints make such forms of manipulation more likely to be detected and punished. By contrast, Figure 2.2 shows that there is no significant effect for local opposition at any level of Putin approval, suggesting that incumbent popularity does not drive falsification.

Turning to dispersed manipulation, Model 5 shows that local opposition and UR governors have an interactive effect on vote-buying and voter pressure. Figure 2.3 presents the marginal effect of

	Dependent variable:		
	Any fraud		
	(1)	(2)	(3)
Presidential	−0.155	−0.117	−0.173
	(0.231)	(0.235)	(0.240)
Population (log)	−0.377*	−0.535**	−0.435**
	(0.208)	(0.220)	(0.214)
Pensioners (log)	−2.024***	−1.867**	−1.411*
	(0.749)	(0.816)	(0.790)
Poverty	0.104	0.537	−0.188
	(1.383)	(1.727)	(1.463)
Higher education	0.026	−0.004	0.025
	(0.038)	(0.043)	(0.039)
Gov. employment (log)	−0.846	−1.072*	−0.789
	(0.533)	(0.574)	(0.543)
Urban	0.110	0.989	0.445
	(1.027)	(1.089)	(1.056)
Unemployment	−0.009	−0.027	−0.005
	(0.022)	(0.026)	(0.023)
Local opposition		0.568	0.204
		(0.406)	(1.075)
UR governors share		1.247	
		(1.106)	
Local opp. : UR govs. share		−1.443**	
		(0.693)	
Putin approval			0.848
			(1.507)
Local opp : Putin approval			−0.560
			(1.398)
Constant	14.349***	13.890**	10.366*
	(5.195)	(5.603)	(5.735)
Observations	463	451	451
Log Likelihood	−258.905	−245.319	−247.989
Akaike Inf. Crit.	535.809	514.638	519.978
Note:			*p<0.1; **p<0.05; ***p<0.01

Table 2.1: Logit models of falsification

	Dependent variable:		
	Absentee coefficient		
	(4)	(5)	(6)
Presidential	0.157***	0.152***	0.153***
	(0.029)	(0.029)	(0.030)
Population (log)	−0.013	−0.008	−0.019
	(0.027)	(0.028)	(0.028)
Pensioners (log)	0.430***	0.375***	0.351***
	(0.099)	(0.103)	(0.105)
Poverty	0.211	0.054	0.098
	(0.185)	(0.227)	(0.193)
Higher education	−0.004	−0.001	−0.004
	(0.005)	(0.006)	(0.005)
Gov. employment (log)	0.015	0.014	−0.011
	(0.070)	(0.073)	(0.070)
Urban	0.556***	0.493***	0.533***
	(0.136)	(0.139)	(0.137)
Unemployment	−0.006**	−0.004	−0.006*
	(0.003)	(0.003)	(0.003)
Local opposition		−0.062	0.146
		(0.052)	(0.137)
UR governors share		−0.127	
		(0.140)	
Local opp. : UR govs. share		0.218**	
		(0.088)	
Putin approval			0.026
			(0.188)
Local opp. : Putin approval			−0.116
			(0.179)
Constant	−2.633***	−2.247***	−2.090***
	(0.688)	(0.711)	(0.757)
Observations	476	464	464
R^2	0.174	0.209	0.198
Adjusted R^2	0.159	0.190	0.178
Note:			*p<0.1; **p<0.05; ***p<0.01

Table 2.2: FGLS models of absentee coefficients (dispersed manipulation)

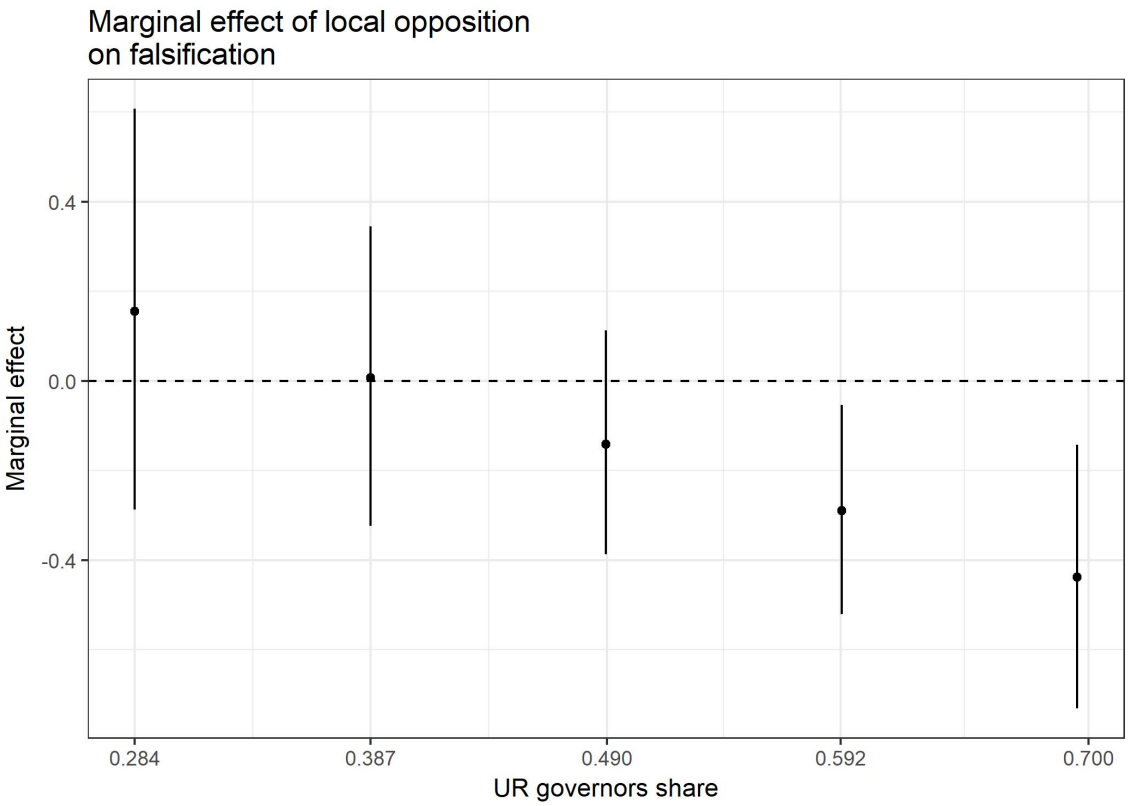

Figure 2.1: Marginal effect of local opposition on falsification, by UR governors share

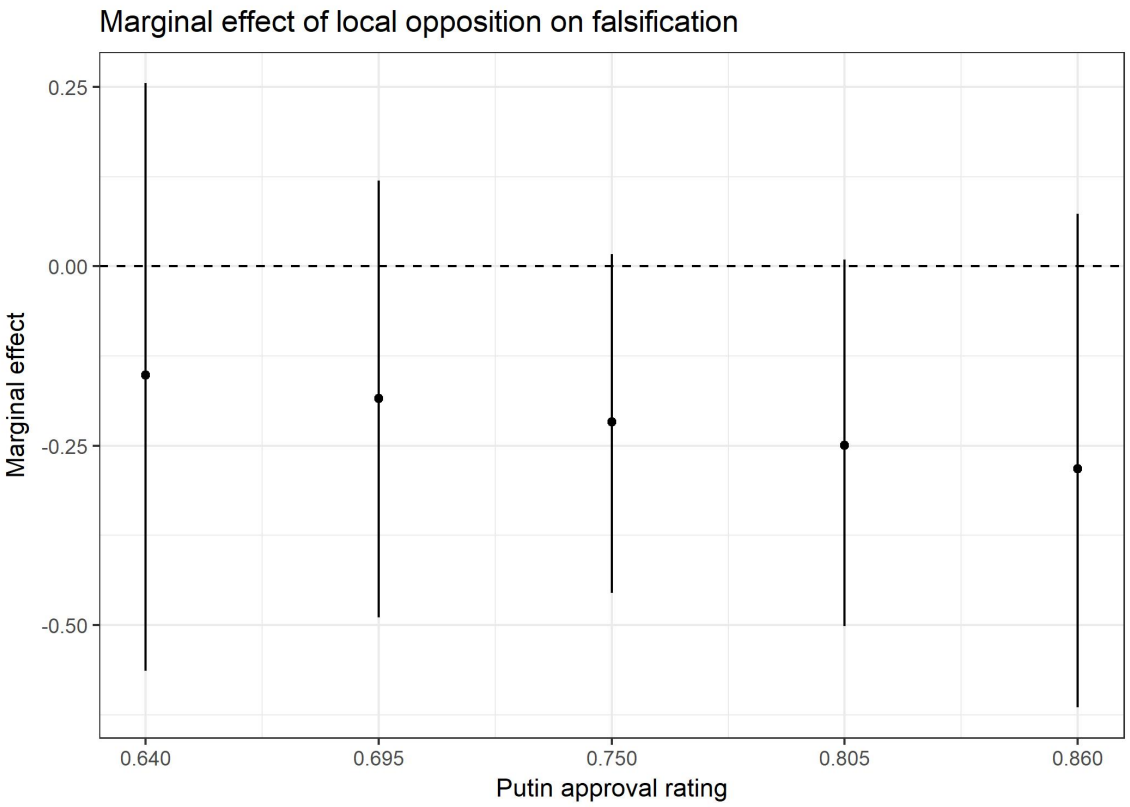

Figure 2.2: Marginal effect of local opposition on falsification, by Putin approval

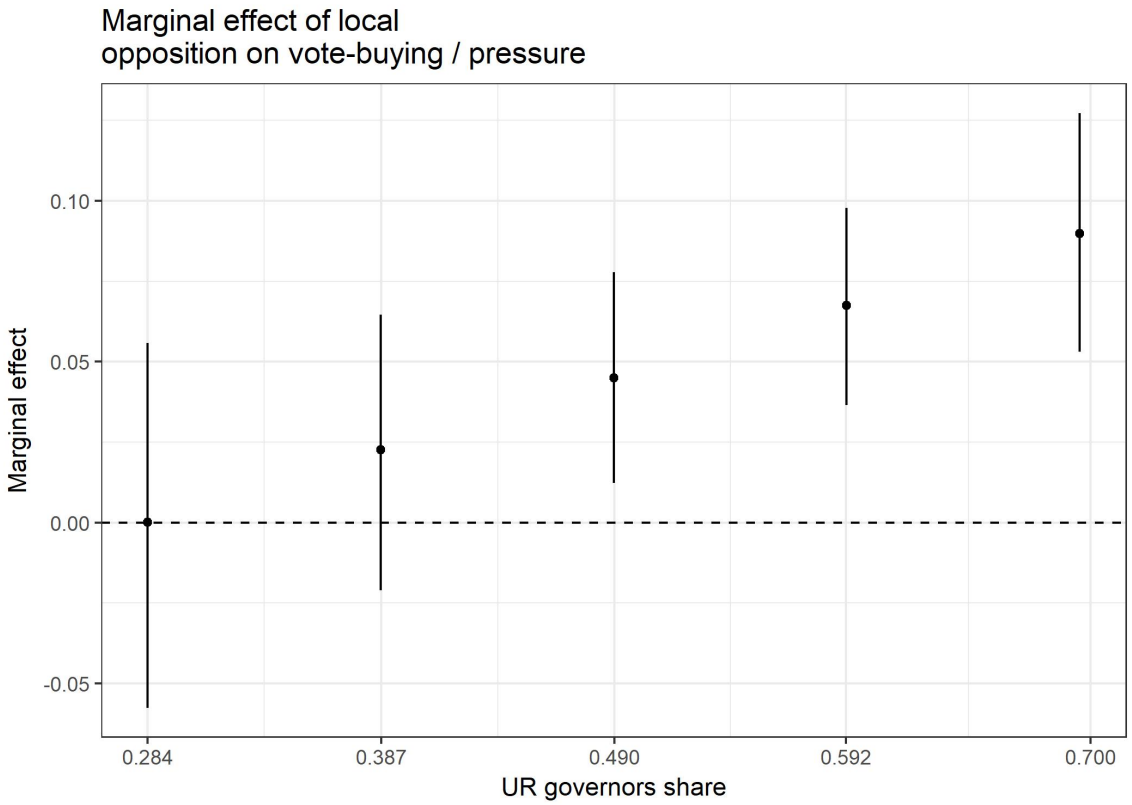

Figure 2.3: Marginal effect of local opposition on vote-buying / voter pressure, at varying levels of UR governors share

local opposition on vote-buying / voter pressure, conditional on UR governors. As the figure shows, local opposition has no significant effect when the national patronage system is less consolidated. By contrast, at higher levels of consolidation, the marginal effect of local opposition increases: once the principal's offer of post-election patronage is more secure, agents engage in vote-buying and voter pressure in places where local constraints are high. Figure 2.4 shows that local opposition has a significant positive relationship with vote-buying / voter pressure, but this effect is not conditional on Putin approval. Together with Model 3, the results show that the incumbent-popularity model is not supported.

Taken together, these results show that electoral manipulation is affected by the interaction of patronage consolidation and local political conditions, and that different types of manipulation are affected in distinct ways. When patronage networks are more consolidated, administrative fraud increases in areas with low local opposition while remaining low in more contested areas. Conversely, under more consolidated patronage, higher levels of vote-buying and voter pressure

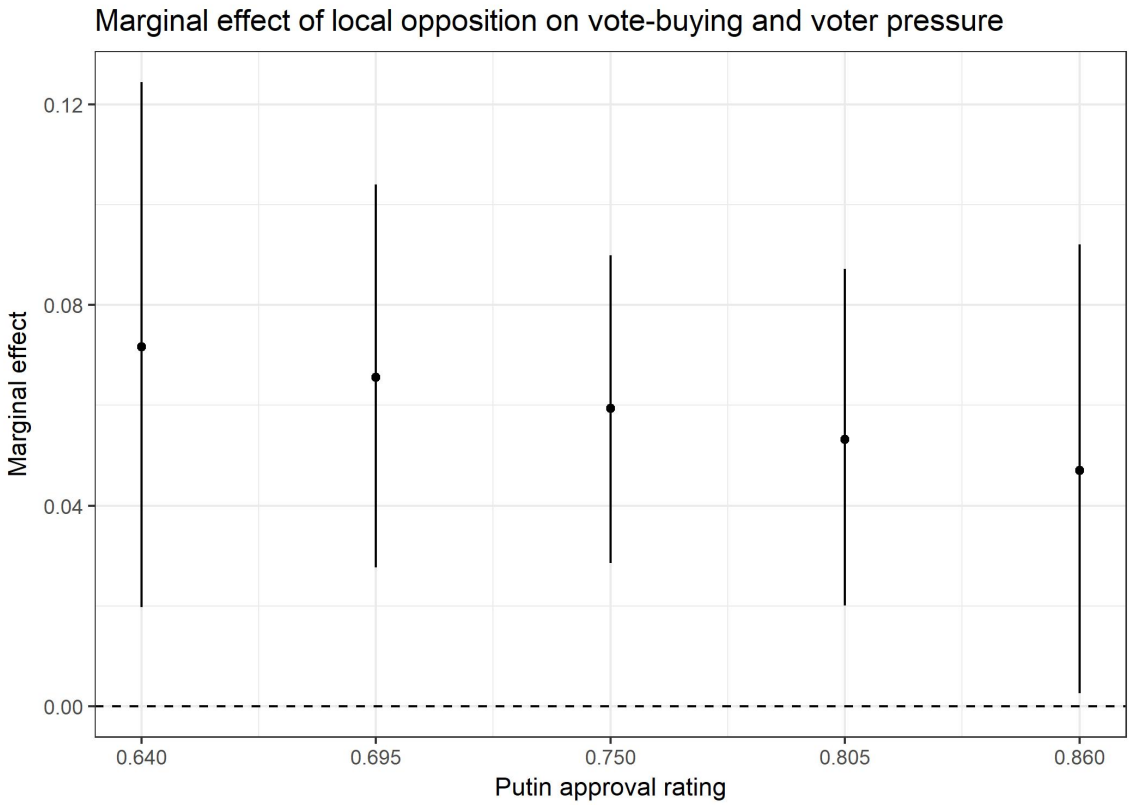

Figure 2.4: Marginal effect of local opposition on vote-buying / voter pressure, at varying levels of Putin approval

efforts are observed in more competitive regions. Neither type of manipulation responds to changes in incumbent popularity in the way that incumbent-popularity model predicts.

These results confirm that principal-agent problems are characteristic of electoral manipulation efforts. However, patronage consolidation and local risks appear to be more relevant than the leader's popularity, with important implications. The incumbent-popularity model holds that unpopular incumbents preside over reduced electoral manipulation as agents defect, but the consolidation-constraint model shows this is not the case. Patronage networks break up when clients no longer expect the network to be a viable source of favor and resources (Hale, 2014). In an electoral authoritarian regime, incumbent popularity may be one element of this expectation, but a decline in popularity is neither a necessary nor a sufficient condition for fragmentation of the incumbent's patronage network. Other factors can insulate an incumbent's network from fragmenting even in the face of low approval ratings, including the age of the network, ethnic or community connections (Hale, 2014), the availability of repressive tools (Gerschewski, 2013), and the absence of a credible rival network. In other words, manipulation can persist even when incumbents are unpopular, so long as they have other resources to draw on in shaping expectations. As a result, low popularity alone will not translate directly into cleaner elections.

Secondly, the incumbent-popularity model obscures the role that local opposition actors and civil society groups can play in shaping patterns of electoral manipulation, even when the incumbent controls consolidated patronage networks. These results show that falsification and mobilizational forms of manipulation are inversely correlated as local constraints increase. Where local actors are able to increase the risk of engaging in manipulation for agents, for example through election monitoring or active opposition parties, dispersed forms of manipulation are more likely than centralized falsification. While these forms of manipulation may have other benefits for incumbents (Harvey, 2016), they are nonetheless more expensive and prone to agency loss than are centralized forms of manipulation. As a result, strategic behavior by civil society groups and parties can drive up the cost of manipulation for incumbents and perhaps reduce the overall level of manipulation. In the Russian case, this underscores the substantive importance of civil-society monitoring groups like Golos (Skovoroda and Lankina, 2017) and nationwide anti-corruption protest movements (Kara-Murza, 2017) in raising the cost of election management for the ruling party at the local level. In sum, researchers interested in understanding variation in electoral manipulation should look toward

patronage networks and local political factors, rather than toward incumbent popularity alone. Likewise, if governments, international actors, or civil society groups are interested in reducing levels of electoral manipulation, breaking up patronage networks and building up local structures that can challenge acts of manipulation are the key tasks; tasks which are in some ways more difficult than challenging the incumbent's popular standing.

Finally, the results suggest important scope conditions for Rundlett and Svolik's (2016) information-based principal-agent model. The model proposed here is most applicable to hybrid regimes and electoral democracies, where local political conditions do vary. The information-based model they propose may be more applicable in fully closed authoritarian regimes that nonetheless hold elections. In such regimes, local agents may be genuinely naive about the true extent of the incumbent's level of support due to rampant preference falsification, and local constraints may be practically nonexistent with little variation across regions. In such a scenario, the effects posited here will be limited. Consequently, the information-based model may be more predictive in hegemonic-party regimes at a moment of transition; while the present model is more predictive for the bulk of hybrid regimes and new democracies. Lastly, it should be noted that both approaches are primarily concerned with illegal forms of electoral manipulation that create risks to agents and are less applicable to legalized techniques for biasing elections.

Some evidence for the proposition that the consolidation-constraint model applies cross-nationally can be gleaned from election-observer reports from other former Soviet countries, a useful comparison as a result of shared institutional features and historical experiences. Observer reports from OSCE monitors suggest that problems with counting and tabulation of votes are more severe in those countries that are most patrimonial and have the lowest local constraints, such as Belarus (OSCE, 2016), Uzbekistan (OSCE, 2017), and Tajikistan (OSCE, 2015). Problems with the voting process itself are relatively more common in less consolidated and more locally competitive Ukraine (OSCE, 2014).

The results also suggest directions for future research. This project examines ruling-party manipulation in a country where patronage is highly consolidated in comparative context, and where even highly competitive areas are generally controlled by the ruling party. These conditions make electoral manipulation an especially risky prospect for agents of opposition parties. However, in more competitive countries, it is entirely possible that deconsolidation of patronage networks might

reduce ruling-party manipulation while increasing manipulation by opposition parties, as agents' cost-benefit analysis swings in favor of the newly empowered opposition. Future research might investigate this possibility.

2.7 Conclusion

Electoral manipulation is an important tool for parties and governments in electoral authoritarian regimes and unconsolidated democracies. Effective manipulation can improve candidates' chances of winning the election, send signals about the strength of the organization, and induce other political actors to comply with the interests of the candidate. However, all of these benefits accrue to the candidate. The candidate's agents, on the other hand, expose themselves to political and legal risks by tampering with the election, even if their political patron wins the election. This asymmetry of preferences gives rise to a principal-agent problem that can result in levels of manipulation that are insufficient to deliver a major victory. The severity of this problem is affected by local risks to agents, the consolidation of patronage around the principal, and the type of electoral manipulation employed. Manipulation is generally low when patronage is less consolidated. As leaders gain more consolidated control over patronage resources, falsification (riskier for agents) rises in local areas where risks are low, while vote-buying and voter pressure (less risky tactics) increase in places where opposition activity and civil society are more prominent.

This theory has several implications for future research on electoral manipulation and democratization. First, it supports a principal-agent model of manipulation, but shows that patronage consolidation, not popularity, drives the appeal of manipulation for agents. Second, it emphasizes the role of local political conditions as constraints on manipulation. This implies that understanding the subnational balance of power is essential for predicting electoral manipulation and for analyzing its causes or effects. Third, it demonstrates that electoral manipulation can be better understood if it is treated as a family of distinct tactics—each with its own costs, benefits and susceptibility to local constraints—rather than as a single concept. Lastly, the results highlight the risks incumbents take when engaging in electoral manipulation during close elections in countries where the ruling party is not dominant at the local level. In this setting, administrative fraud is difficult to obtain, and principals are forced to rely more heavily on dispersed tactics. The result is likely to be a partially manipulated election in which tampering is widespread enough to attract public attention, but not effective enough to secure the kind of dominating victory that keeps opposition groups from pressing

their case.

CHAPTER 3

Principals, agents, and pro-opposition electoral manipulation in Mexico

The prior chapter on election manipulation in Russia shows the effects of increasing patronage consolidation on multiple forms of election manipulation, in the context of low- to moderate levels of local risk; during the period covered by the study, the ruling United Russia party never loses full control of a regional government. Consequently, that case cannot be used to test further implications of the consolidation and constraint model of election tampering. In particular, the Russian case can tell us very little about how opposition parties may seek to benefit from electoral manipulation as democratization increases the opposition's access to patronage resources increases and produces pro-opposition partisan strongholds. How, then, does election manipulation shift as patronage networks become less consolidated and opposition parties start to gain control of a share of the resources? And what happens when former opposition parties gain their own political strongholds, reducing the risk of exposure and punishment for their agents? Under the theory proposed by Simpser (2013), election manipulation in such settings would be expected to be rare, as parties lack the preponderance of resources necessary to use manipulation as a signal of dominance. The principal-agent framework articulated by Rundlett and Svolik (2016) suggests that pro-opposition manipulation should be common in opposition strongholds, irrespective of national conditions, as local agents estimate the ultimate outcome of the election by looking at the local state of play.

The consolidation and constraint model makes alternative predictions under these conditions, which are tested here. Specifically, it predicts that agents in opposition-party strongholds will only be able to deliver increased election manipulation as the system of patronage begins to favor that party. That is, unlike in the Rundlett and Svolik model, low local competition alone is not enough to trigger increases in election malfeasance by local agents. Instead, low local risks of exposure must be accompanied by increasing access to patronage resources for the party with which to recruit agents. This interactive hypothesis is tested using a two-stage model of falsification in Mexico's states from 1994 to 2012, and with a difference-in-differences model of overall electoral manipulation in two of

Mexico's states over the same period.

The results of the analysis below are supportive of the consolidation and constraint model, and are also strongly suggestive of the importance of local agents in driving these dynamics. In particular, the differences-in-differences analysis shows that evidence of overall manipulation in favor of both the PAN and the formerly hegemonic PRI decline more dramatically in a state that has experienced alternation in the state governor's office from the PRI to the PAN and back again, compared with a state in which the PRI has maintained unbroken control. Even holding PRI governorship constant after the second alternation, and with both states experiencing the same national conditions, manipulation is reduced in the more competitive state. This suggests that agents, rather than PRI leaders, are the key decision-makers in driving levels of manipulation under risky setting. A deeper investigation of the agent-driven dynamic is undertaken in Chapter 5.

This article proceeds in four sections. First, I provide a brief overview of the history of electoral manipulation, patronage, and local competition in Mexican politics over the period studied. I then propose hypotheses for the relationship between electoral manipulation and political competitiveness in the Mexican context, and describe data and measures. This is followed by the results and a brief conclusion that discusses their implications.

3.1 Electoral manipulation and principal-agent dynamics in Mexico

Mexico provides an excellent test case for the application of the consolidation and constraint model of electoral manipulation to rising opposition parties. The decline of the Institutional Revolutionary Party (PRI) as a national hegemonic party allows for wide variation in the level of national patronage consolidation over time. Beginning in the 1980s, the PRI lost control over state legislatures and governorships with increasing regularity. Prior to the 2016 state elections PRI governors presided in just over half of Mexico's states; in those elections, the PRI lost seven out of twelve gubernatorial elections, further eroding its position in the states. These local victories by the opposition National Action Party (PAN) and the Party of the Democratic Revolution (PRD), in combination with regular protest actions, led to major reforms of the Mexican electoral administration through the 1990s. These reforms established an independent electoral tribunal, reducing the ability of the PRI to directly influence election results. At the same time, the decision to liberalize Mexico's economy made it difficult for the PRI to rely on patronage to motivate voters, limiting the effectiveness of one of the party's traditional sources of dominance. These trends culminated in the loss of the PRI

majority in Congress in 1997, and its loss of the presidency in 2000, ending over seventy years in power. The years since have been marked by an uneven consolidation of multiparty democracy. Though national competitiveness has generally increased in Mexico over the time period examined here (1992 – 2012), this trend has not been felt equally in each of Mexico's thirty-one states (and one Federal District). In some regions, the PRI has continued to dominate politics, while in others the outcome of legislative and gubernatorial elections is much more in doubt. This national and subnational variation in political uncertainty helps shape the costs and expected benefits of electoral manipulation for individual agents, by exposing them to (or insulating them from) national pressures.

Through most of the 20$^{\text{th}}$ century, Mexican politics were dominated by the PRI. The party's use of state patronage, clientelism, corporatism, and—at times—outright electoral manipulation enabled it to retain control of Congress and a powerful presidency for decades. As the PRI was able to effectively stitch together a large, cross-class coalition of supporters who received various benefits either directly from the party-state apparatus, or indirectly through government policy, outright fraud was rarely necessary to secure the PRI's electoral dominance which relied instead on robust patronage and clientelistic networks (Magaloni, 2006). However, electoral fraud was often employed to magnify the party's majority (Klesner, 2001), and at least once to prevent a likely electoral defeat. The infamous breakdown of the computers used to calculate the results on election night in 1988, followed by the PRI's narrow victory once the computers were restored, led to widespread allegations of fraud and popular mobilization in protest (Domínguez and McCann, 1998).

In response to deepening economic malaise in the 1970s and a 1982 debt crisis, the PRI-state embarked on a process of economic liberalization in the 1980s. The economic dislocation and breakdown in patronage consolidation associated with this program (job loss, reduced benefits, market-derived rather than state-provided welfare) deprived the PRI of many of its traditional sources of electoral support (Greene, 2007). This trend, in conjunction with the post-1988 protests and the determined efforts of the opposition parties to contest state and local elections during the 1980s, produced the first real bouts of electoral competition in Mexico's post-civil war history (Beer, 2001; Eisenstadt, 2007). The PRI, a party of the center, was challenged on the right by the PAN and on the left (after the 1988 schism) by the PRD. At first, this electoral competition was limited to subnational contests. Representatives of the PAN or PRD were able to win municipal and state elections, and use resources and networks captured at those levels to challenge the PRI at the level

of the presidency and the federal Congress. The PRI lost its first governorship in 1989, and the pace of local and state defeats accelerated into the 1990s.

The opposition parties and their activists used these victories, along with post-election protest against allegedly unfair elections in which the PRI prevailed, to win concessions from state and federal governments (Eisenstadt, 2007; Barracca, 2007). Such concessions included restrictions on the powers of the Electoral College (made up of the members of the PRI-dominated federal Congress) to certify election results, the 1993 creation of a federal electoral tribunal to adjudicate electoral disputes, and the 1996 decision to place that tribunal within the judicial branch of government rather than the PRI-controlled executive (Berruecos, 2003; Simpser and Donno, 2012). In the wake of these and other reforms, the PRI lost its majority in Congress in 1997 followed by the presidency in 2000.

As a result of these opposition victories, Mexico's party system shifted from an authoritarian hegemonic one dominated by the PRI, to a kind of bifurcated three-party system in which the PRI was contested by the PAN in some parts of the country, and by the PRD in others (Klesner, 2005; Ferreira Do Vale and Wences, 2014). However, limits to electoral competition have persisted. In many states, the PRI continues to dominate subnational politics and continues to rely on machine politics to secure that dominance (Benton, 2012; Cantú, 2014; Hiskey and Bowler, 2005; Lawson, 2000). Likewise, representatives of the PAN and PRD—having secured access to patronage resources themselves—have in many cases turned to the same methods that gave the PRI the upper hand in years past (Olvera, 2010; Hilgers, 2008). Election observers and defeated parties continue to raise criticisms of election integrity in some states. In regions where opposition parties have gained control, agents considering tampering with an election on behalf of the PRI are less likely to be rewarded and more likely to face political punishment, which may encourage such agents to more readily sell their services to the opposition.

3.2 Hypotheses, data, and methods

The principal-agent model of electoral manipulation holds that increasing local competitiveness reduces agents' willingness to engage in electoral manipulation. In Mexico, national patronage consolidation under the PRI has generally decreased over the time period studied, which should generally reduce the level of electoral manipulation. However, this deconsolidation has enabled political parties other than the PRI to claim a share of patronage resources, enabling them to seek election-manipulating agents if they so choose. Similarly, an overall increase in partisan

competitiveness has turned some states into opposition strongholds as the PRI's hegemony has waned. In these states, the pendulum of local competitiveness has swung in the opposite direction—from PRI dominance to opposition dominance. This pattern is not present in Russia, where the ruling party's dominance is unquestioned over the period studied, or in Ukraine where local partisan affiliations are more fixed. Consequently, it allows for a test of the theoretical implication that electoral manipulation may rise in opposition strongholds as patterns of patronage change. In sum, the breakdown of the PRI's near-complete control over patronage resources has reduced that party's ability to deliver election manipulation, but has enabled opposition parties to do so for the first time. This is especially likely to be true in states where parties other than the PRI have developed local strongholds, creating reduced risk of exposure for their partisan agents. In Mexico, then, the principal-agent model of manipulation suggests the following hypotheses.

> Hypothesis 1: Lower patronage consolidation should result in increased pro-PAN election manipulation in states where local risks for the opposition are low.
>
> Hypothesis 2: Lower patronage consolidation should result in decreased anti-PAN election manipulation in PRI local strongholds.
>
> Hypothesis 3: Manipulation on behalf of the PRI and PAN should decline in areas where partisan competition is high.

This study uses election-forensics tools to analyze precinct-level election results in Mexico. The number of precincts in each election ranges from approximately 100,000 to 140,000, divided among thirty-one states and the Federal District. Legislative and presidential votes are included separately in the analysis, resulting in eleven total elections from 1994 to 2012. Limitations of the dataset place constraints on the electoral forensic approaches that can be used. In particular, precinct-level data on the number of registered voters (and, consequently, data on turnout) is only available for the 2006, 2009, and 2012 elections—a period that is well into the consolidation of Mexico's multiparty system. This limitation precludes a nation-wide analysis of turnout-based estimates of electoral manipulation during Mexico's shift away from a hegemonic party system. As a result, I test the principal-agent model of manipulation in Mexico using two approaches.

First, a digits-based measure of manipulation can be conducted for the full time period, since the digits test only requires the number of votes for each party by precinct. This approach aims to

capture non-random manipulation in vote-totals by human beings, such as falsification of election protocols. Electoral manipulation is measured in three steps using this method. Each Mexican state is divided into two or more voting districts, based on population size. As a first step, the distribution of trailing digits for the PAN is calculated for each district within every state, using the precinct-level results of each election. Estimating fraud at the district level allows for measurement as close to the precinct level as possible, and maximizes the number of observations available for analysis. In total, there are 3,386 district-year observations.

Next, the distribution of the party's trailing digits is compared to the uniform distribution using a chi-square test. This test relies on the intuition that in a clean election, ones-digits from a party's vote total ought to be uniformly distributed across precincts, but that falsification of the results by human beings skews this random pattern in detectable ways. Finally, the dummy variable *PAN fraud* takes a value of one for each region if the results of the chi-square test are statistically significantly non-uniform ($p < .05$), and a value of zero otherwise. This approach is similar to that taken by (Weidmann and Callen, 2013), in a study of electoral fraud in Afghanistan. This variable is then used as the dependent variable in multilevel logit models (with random intercepts) that draw on data from all of Mexico's states, for all available election years.

This test only detects a specific form of manipulation: falsification of election results by election officials (Beber and Scacco, 2012). While vote-buying, clientelism, and patronage have been considered to be the primary methods by which the PRI manipulated elections during its dominance (Magaloni, 2006; Greene, 2007; Larreguy et al., 2016; Fox, 1994), Mexican parties have relied on a variety of tools—including falsification—to tamper with results. For example, the PRI employed mapaches (raccoons) to falsify election results, especially in regions where only the PRI could afford to station party monitors in polling places (Langston and Morgenstern, 2009). While the process of falsification is often centrally coordinated (Simpser 2013), and occasionally centrally carried out (as in the 1988 Mexican election, in which the central computer used to tabulate the results mysteriously shut down as election results began to come in (Lehoucq, 2003)), it is more often enacted at the 'retail' level in contemporary Mexico. A common technique, known as *fraude hormiga*,[1] involves precinct level

[1]This term literally translates as 'ant fraud.'

officials adding or subtracting a small number of votes from the final results. These adjustments are small enough at the precinct-level to avoid nullification of the local results under Mexico's election law, but can be large enough in aggregate to affect the overall outcome. Fraude hormiga is facilitated where parties are able to buy off election workers and/or install partisan poll workers on election day (Cantú, 2014).

The explanatory variables in these models capture variation in local risk and national patronage consolidation. The local level of risk is measured by *political alternation*, a dummy variable which records whether or not the PRI has ever lost control of a state's governorship prior to the election at hand. Loss of the governor's mansion by the PRI puts the abstract notion of multiparty competition into practice in the real world. It is also a marker of underlying, unobservable factors of politics in each state that that affect competitiveness, such as the local strength of the PRI political machine. A region in which the PRI lost the governorship in the early 1990s should be very different politically than one in which the PRI retained unbroken control through 2012. As a second approach, alternation is replaced by the dummy variable *PAN governor*, indicating whether that party controls the state governorship on election day. Both measures are similar to that employed by Hiskey and Bowler (2005). Control of the state executive apparatus should make pro-PAN manipulation less risky for agents. Conceptually and empirically, these two variables overlap considerably (Pearson's correlation coefficient = .62). *PAN governor* indicates whether the sitting governor at the time of the election represents that party, while *alternation* indicates whether or not there has ever been a handover of power in the governor's mansion. In most cases, such a handover occurred from the PRI to the PAN.

The degree of nationwide patronage consolidation is likewise captured using three variables. First, *non-PRI governors* captures the overall share of state governorships claimed by parties other than the PRI. The variable is an indicator of the overall ability of the PRI to channel its patronage resources to the state level. Conversely, it is also an indicator of the ability of rival parties to marshal their own patronage resources, based in the states, in competition for national offices; as the PAN and PRD used local victories to push for further concessions at the national level. Second, the dummy variable *PAN president* takes on a value of one for elections in which the sitting president represents the PAN (that is, for elections that took place during the presidencies of Vicente Fox and Felipe Calderón). This period represents the full loss of control over national patronage levers by the PRI, and the newfound ability of the PAN to move some of those levers. Lastly, a dummy

variable *unified government* takes on a value of one for elections in which the same party (in this case, the PRI) controls the presidency and the lower house of Congress.

A set of control variables helps account for other possible sources of variation in electoral manipulation or support for the major parties in Mexico. These include the size of the *population* and the *population density*, which can affect the ease with which elections can be manipulated. Additionally the wealth of the state, measured by its *gross regional product* (in thousands of 2015 US dollars) divided by its population, can affect parties' ability to buy votes or mobilize voters, among other effects. *Pensioners*, measured here by the percentage of the population over sixty, may be susceptible to electoral pressure due to their dependence on the state. In addition, I control for *presidential elections*.

Since the dependent variable in these models—PAN fraud—is binary, I analyze it using logit regressions. To account for the fact the observations are nested within states, I employ a multilevel model, which allows for 'partial pooling' of the observations within each state. This is a compromise approach between completely pooling all observations (ignoring variation between states), and modeling each state separately (ignoring similarity between states and overfitting the model to the data within each case) (Gelman and Hill, 2006). The model allows for varying intercepts, such that the predicted value of the dependent variable (the probably of manipulation of the PAN vote totals) varies across states. This test illuminates how one particular type of electoral manipulation is employed during Mexico's political liberalization, nationwide.

The second test uses a turnout-based measure of overall manipulation, not just falsification. This allows for a broader test of the effect of local and national competitiveness on manipulation levels. This measure uses a multilevel regression model to compare precinct-level turnout with a party's absolute vote-share—the proportion of registered voters who cast votes for that party—for each Mexican state during each election. This is an extension of a method proposed by Myagkov et al. (2009), which produces a coefficient estimating the relationship between turnout and a party's vote-share cross-sectionally and over time. Larger coefficients suggest that high-turnout precincts systematically favors a party, which could be indicative of ballot stuffing, falsification of the count in those precincts, a vote-buying effort, or other forms of manipulation.

Turnout data is not available nationwide for the whole time period studied here, but can be estimated for the two states used in the difference-in-differences model. Since overall manipulation

is the dependent variable here, the predictions of the model are more straightforward. Electoral manipulation should decline over time in both cases, as overall patronage consolidation declines and reduces the ability of parties to recruit agents. However, this effect should be more pronounced in the treatment case—where local competitiveness is higher.

In order to conduct the second test of the theory, I estimate precinct-level turnout for two neighboring states—Nayarit and Durango—which can then be used to construct a turnout-based measure of electoral manipulation. This measure is then used as the dependent variable in a difference-in-difference model, which tests the effect of local competitiveness on patterns of manipulation, while both cases underwent the same national changes in competitiveness. Exact precinct-level turnout data is not available before 2006; however, it can be estimated for prior elections. Data on the number of registered voters, while unavailable at the precinct level, is provided in aggregate form at the level of the municipality. Since each municipality is associated with a known number of precincts, it is possible to divide the number of registered voters evenly among the precincts. The estimated number of registered voters, in combination with the known number of votes cast, is then used to compute precinct-level turnout. While this approach will introduce some measurement error into an independent variable (turnout), the error is likely to be at random—the true, unknown number of registered voters in some precincts will be somewhat above average in some precincts and somewhat smaller in others, but these errors should be randomly distributed across observations. As such, measurement error in precinct-level turnout should not bias the results of the model. The large number of precincts in each state—approximately 1,000 in Nayarit and 1,500 in Durango—helps mitigate the negative effect of this measurement error.

The turnout-based measures of electoral manipulation derived in this way are used to compare patterns of manipulation over time in the neighboring regions of Nayarit and Durango. The PRI has governed Durango continuously since the establishment of the party. However, in Nayarit, the PAN won control of the governor's mansion in the 1997 election, only to lose it back to the PRI after one six-year term. Comparing patterns of electoral manipulation in these two states, using the PRI's uninterrupted rule in Durango as a control, thus allows for the study of two treatment effects. First, what is the effect of the PRI's loss of power on manipulation? Second, and more important for this study, do these effects carry over once PRI government is restored?

This approach has several advantages. First, Nayarit and Durango are relatively similar in

demographic and economic terms. There are two other pairs of states in which one saw uninterrupted PRI control while the other elected an opposition governor for one term: Michoacán and Colima, and Nuevo León and Coahuila. However, these pairs are considerably more heterogeneous, limiting the effectiveness of the control states in each case. By contrast, using Durango and Nayarit in the difference-in-difference model allows for a controlled comparison that draws on all available election data for the two states, from 1991 to 2012. Over this time period, national changes in the electoral environment—such as the introduction of the electoral tribunal in 1993, the strengthening of the tribunal's independence and judicial authority in 1996, the PRI's loss of Congress in 1997 and of the presidency in 2000—affect both states at the same time. Since national political conditions are experienced in common and local socioeconomic conditions are comparable, the effects of local competition on electoral patterns can be considered causal with greater confidence.

Finally, the return of PRI governance creates a stronger test for the principal-agent model of manipulation. After the 2003 election, the same party controls the governorship in both states. However, in Nayarit, political actors experienced six years of PAN government. This experience of alternation in government makes the risk of electoral manipulation more real for agents. Alternation puts agents' expected benefits at risk, by reducing the likelihood that agents will be rewarded with patronage benefits if the opposing party wins the election. In addition, the loss of the governorship may result in altered patronage flows—both from the federal level to the state, and from the state level to the municipalities—as patrons work to reward their supporters and punish opponents under a new partisan environment. This unpredictability, in conjunction with the possibility of political or criminal punishment for violating the election law, makes agents less willing to engage in manipulation. In turn, this may drive up the price that agents demand in order to deliver votes, reducing principals' capability to hire numerous, effective agents.

This effect should be observable in Nayarit after the PRI loses the governorship. However, reductions in electoral manipulation during the PAN's rule might plausibly be characterized as an effect of redirected patronage flows due to PAN control of the state executive, rather than an effect of alternation and local risk. In other words, an apparent decrease in the severity of electoral manipulation during that period could reflect variation in the interest or capability of PAN leaders to engage in electoral manipulation compared to the PRI, rather than decision-making by agents. By contrast, once the PRI regains control of the Nayarit governorship, it is safer to assume that PRI

party leaders in Nayarit and Durango share similar incentives and capabilities. This allows for a stronger, though still indirect, test of the effects of competition on agent behavior. This method holds national effects and subnational leadership constant, and closely controls for local socioeconomic conditions. Treatment effects are thus more plausibly associated with the behavior of agents, though such behavior cannot be directly measured.

The difference-in-difference models are estimated as follows. The estimated level of electoral manipulation for the PRI and PAN, and their predictors, are estimated using multilevel model in which intercepts and slopes are allowed to vary by municipality. This variation is what allows for the relationship between turnout and a party's absolute vote-share to be estimated and predicted. The turnout-based estimate of electoral manipulation is estimated at the first level of the model, where the relationship between turnout and absolute vote-share is calculated. At the second level of the model, the state-level predictors of these estimates are calculated. In this case, these state-level predictors are the treatment variables first alternation and second alternation. The *first alternation* dummy variable takes a value of one after the election of a PAN governor in Nayarit; *second alternation* is set to one after the PRI returns to power.

The difference-in-differences models draw on precinct-level vote and turnout data from Nayarit and Durango, from 1991 to 2012. In total, there are just under 40,000 precinct observations across this time period, divided into 59 municipalities. The first-level dependent variable is the absolute vote-share for the PRI or the PAN. The absolute vote-share is modeled as a function of percent turnout, a dummy variable for presidential elections, and a dummy variable that tracks whether or not the PRI has a majority in the municipal council at the time of the election (PRI municipal majority). In addition, the treatment group dummy variable marks whether each precinct is located in Nayarit or Durango. The dummy variable post-treatment 1 indicates whether the election takes place after the first transfer of power in Nayarit (in separate models, post-treatment 2 marks elections after the PRI's return to office).

The coefficients for percent turnout are allowed to vary by municipality. These estimates form the dependent variable at the second level of the model, and are predicted by treatment group, post-treatment, and the interaction between to the two. This formulation allows for the difference-in-difference estimator to be calculated. To determine the difference-in-differences estimator, it is necessary to know the value of the dependent variable under four conditions: in the control and

treatment groups prior to the treatment, and in both groups after the treatment. As the following equation shows, the coefficients from the second level of the model can be used to estimate these four conditions.

$$\beta_j = \gamma_0(turnout) + \gamma_1(treat) + \gamma_2(post - treat) + gamma_3(treat : post - treat) + \epsilon$$

When both treatment and post-treatment are equal to zero, only γ_0 remains in the equation, providing the estimated level of manipulation in the control case before treatment. Using the same approach, values for the remaining three conditions can be calculated. Finally, the difference-in-difference estimator is calculated as follows, where t stands for the treatment group and p stands for the post-treatment time period. Put in the context of this study, the estimator finds the difference in the level of manipulation in Nayarit before and after alternation in power, and compares it to the level of manipulation in Durango (where no alternation has taken place).

$$\delta = (E[Y|t = 1, p = 1] - E[Y|t = 1, p = 0]) - (E[Y|t = 0, p = 1] - E[Y|t = 0, p = 0])$$

3.3 Results

3.3.1 Fraud score models

Tables 3.1 and 3.2 report the results of the digits-test models of fraud affecting the PAN. The tables shows seven distinct models. Model 1 includes control variables only, to facilitate goodness-of-fit comparisons with the treatment models; it is included in both tables for ease of comparison. Models 2 through 4 use alternation as the measure of local risk, and non-PRI governors, PAN president and unified government as measures of patronage consolidation, respectively. Models 5 through 7 replace alternation with PAN governor. The results show that patronage consolidation and local levels of risk jointly affect the estimated levels of manipulation affecting the PAN.

The results of all six models that contain interaction terms support Hypothesis 1 and 2, and offer improvements in goodness-of-fit compared to the base model as measured by AIC. Marginal effects plots are provided below, to better interpret the interaction effects presented in the tables.

	Dependent variable:			
	PAN fraud			
	(1)	(2)	(3)	(4)
Pop. density (log)	0.04	0.01	0.08	−0.01
	(0.14)	(0.14)	(0.14)	(0.14)
Population (log)	0.12	0.14	0.09	0.16
	(0.26)	(0.26)	(0.26)	(0.26)
Over sixty	0.03	0.07	−0.05	0.09
	(0.09)	(0.10)	(0.10)	(0.10)
Post-primary education	−5.31***	−4.42**	−6.64***	−3.64*
	(1.84)	(2.10)	(1.96)	(2.12)
Presidential	0.02	0.06	0.10	0.04
	(0.13)	(0.13)	(0.14)	(0.13)
Piped water	−0.03	−0.03*	−0.03	−0.04*
	(0.02)	(0.02)	(0.02)	(0.02)
Alternation		−2.19***	−0.70**	−0.17
		(0.70)	(0.32)	(0.21)
Non-PRI govs. share		−0.73		
		(0.77)		
PAN president			0.54**	
			(0.27)	
Unified government				0.45*
				(0.23)
Non-PRI govs. share : Altern.		4.80***		
		(1.67)		
PAN pres. : Alternation			0.42	
			(0.36)	
Unified gov. : Alternation				−1.38**
				(0.64)
Constant	−0.22	−0.49	0.79	−1.13
	(4.15)	(4.13)	(4.05)	(4.13)
Observations	3,386	3,386	3,386	3,386
Log Likelihood	−895.52	−889.35	−889.75	−890.05
AIC	1,807.05	1,800.71	1,801.50	1,802.10
Note:				*p<0.1; **p<0.05; ***p<0.01

Table 3.1: Logit models of PAN fraud, using *alternation*

	Dependent variable:			
	PAN fraud			
	(1)	(5)	(6)	(7)
Pop. density (log)	0.04	0.01	0.08	−0.01
	(0.14)	(0.14)	(0.14)	(0.13)
Population (log)	0.12	0.16	0.11	0.15
	(0.26)	(0.26)	(0.26)	(0.25)
Over sixty	0.03	0.05	−0.06	0.07
	(0.09)	(0.10)	(0.10)	(0.09)
Post-primary education	−5.31***	−5.20**	−7.38***	−3.73*
	(1.84)	(2.13)	(2.02)	(2.11)
Presidential	0.02	0.03	0.07	0.04
	(0.13)	(0.13)	(0.13)	(0.13)
Piped water	−0.03	−0.03	−0.02	−0.04*
	(0.02)	(0.02)	(0.02)	(0.02)
PAN governor		−1.85**	−1.15**	0.02
		(0.75)	(0.48)	(0.27)
Non-PRI govs. share		−0.48		
		(0.74)		
PAN president			0.46*	
			(0.25)	
Unified government				0.48**
				(0.23)
Non-PRI govs. share : PAN gov.		4.41**		
		(1.82)		
PAN pres. : PAN gov.			1.22**	
			(0.49)	
Unified.government : PAN gov.				−1.50**
				(0.65)
Constant	−0.22	−0.82	0.34	−0.88
	(4.15)	(4.10)	(4.10)	(4.04)
Observations	3,386	3,386	3,386	3,386
Log Likelihood	−895.52	−891.73	−888.59	−890.37
AIC.	1,807.05	1,805.45	1,799.17	1,802.74
Note:				*p<0.1; **p<0.05; ***p<0.01

Table 3.2: Logit models of PAN fraud, using *PAN governor*

For brevity, the plots here correspond to Models 2 and 5; marginal effects plots for Models 3, 4, 6, and 7 are shown in the appendix. Lastly, to illustrate the substantive significant of the interaction, a predicted probability plot is shown that corresponds to Model 2.

Figure 3.1, for example, shows that the marginal effect of non-PRI governors share on PAN fraud is positive and significant in states that have experienced alternation in government, but is not statistically significant in states where the PRI has maintained unbroken control over the executive. In other words, as the PRI's overall share of governorships decreases (and other parties gain access to patronage resources via those governorships), the likelihood of falsification affecting the PAN increases only in regions where the PRI has lost control. This suggests that as the PAN captures more patronage resources by capturing a larger number of state governorships, it is able to deliver pro-PAN manipulation in places where the PRI no longer governs. Figure 3.2, which shows the marginal effect of non-PRI governors conditional on PAN control of the state government, helps confirm this interpretation. When a PAN governor is in office, a decrease in the PRI's overall control of patronage resources results in increased PAN fraud. Though the digits test underlying the dependent variable cannot provide the direction of the estimated fraud, the most plausible assumption is that this increase in manipulation is in support of the PAN (given its control over the executive).

Figures 3.3 and 3.4 report the marginal effects for the opposite version of the interaction, that is, the effect of local risk conditional on the level of patronage consolidation; both show support for Hypothesis 2. They show that at low levels of non-PRI governors share—that is, when the PRI's hold over state governorships is dominant nationwide—alternation and PAN governor both result in significant reductions in the likelihood that PAN vote-shares will appear manipulated. As with the interpretation of Figures 3.1 and 3.2, the most plausible explanation for this pattern is that a shift away from PRI control of the state increases the risk of exposure and punishment for pro-PRI agents, deterring fraud that reduces the PAN's vote-share. Of course, it is also likely that the loss of the governorship also restricts the ability of the PRI to channel patronage resources to the state; testing the relative importance of local risk vs. patronage interruption is a focus of the subsequent difference-in-differences test.

Finally, Figure 3.5 shows the predicted probability of fraud affecting the PAN by the degree of local risk and the level of nationwide patronage consolidation. The left panel of the figure shows

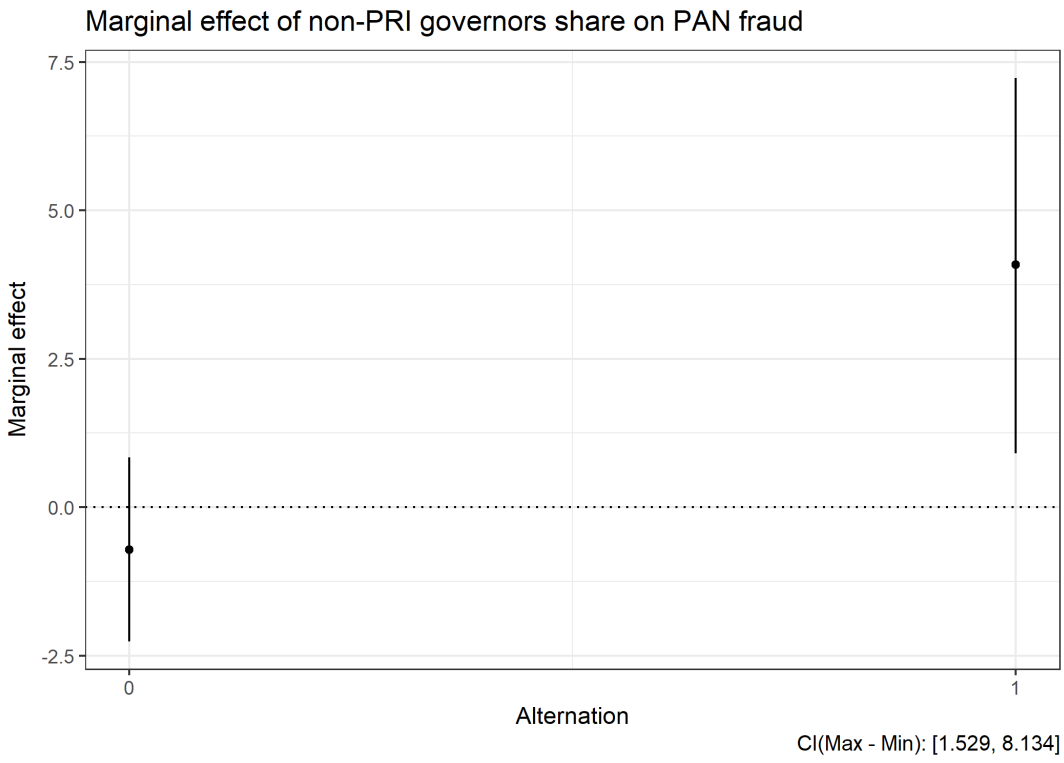

Figure 3.1: Marginal effect of non-PRI governors share on PAN fraud

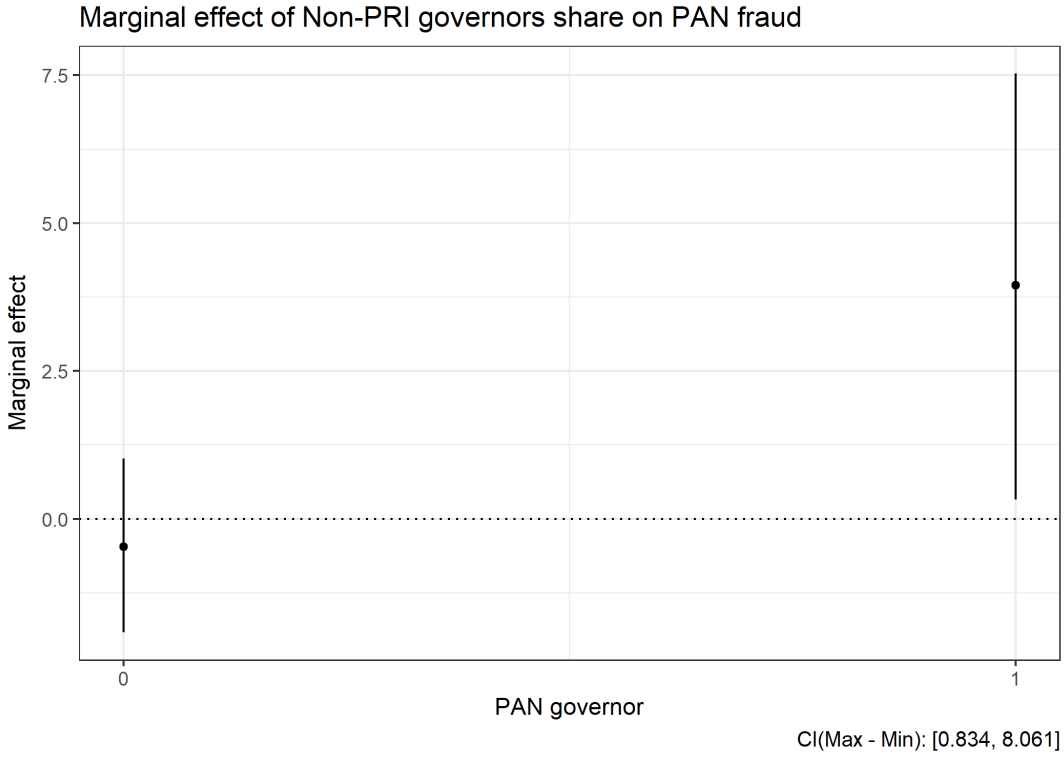

Figure 3.2: Marginal effect of non-PRI governors share on PAN fraud

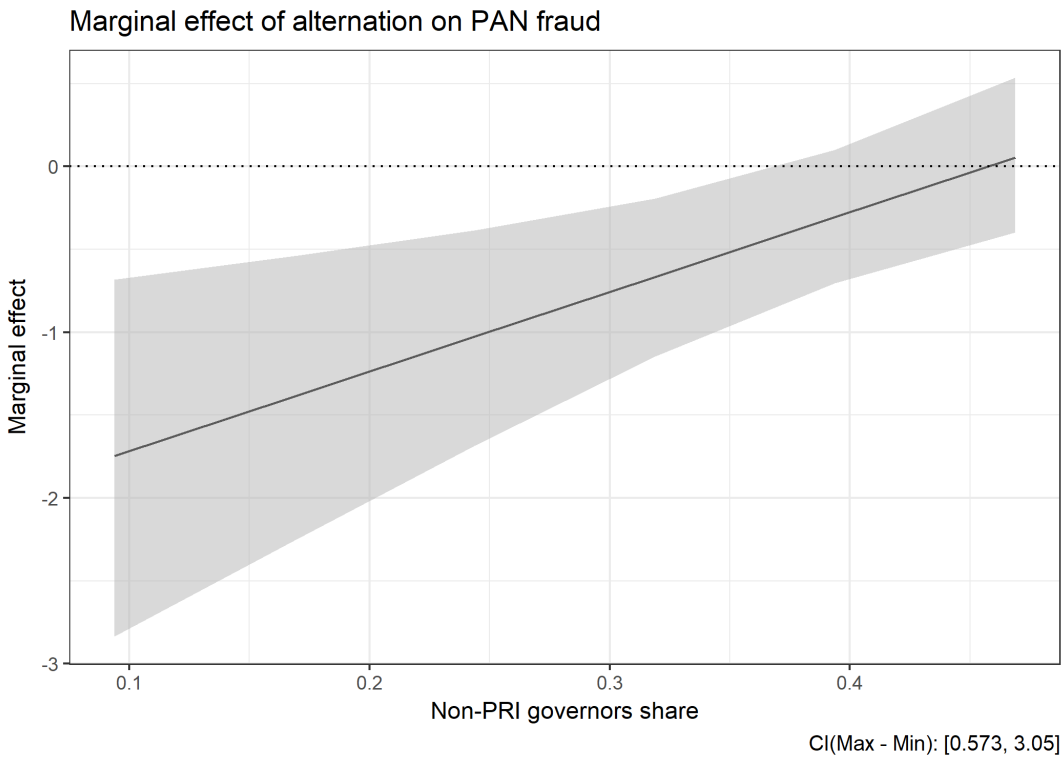

Figure 3.3: Marginal effect of alternation on PAN fraud

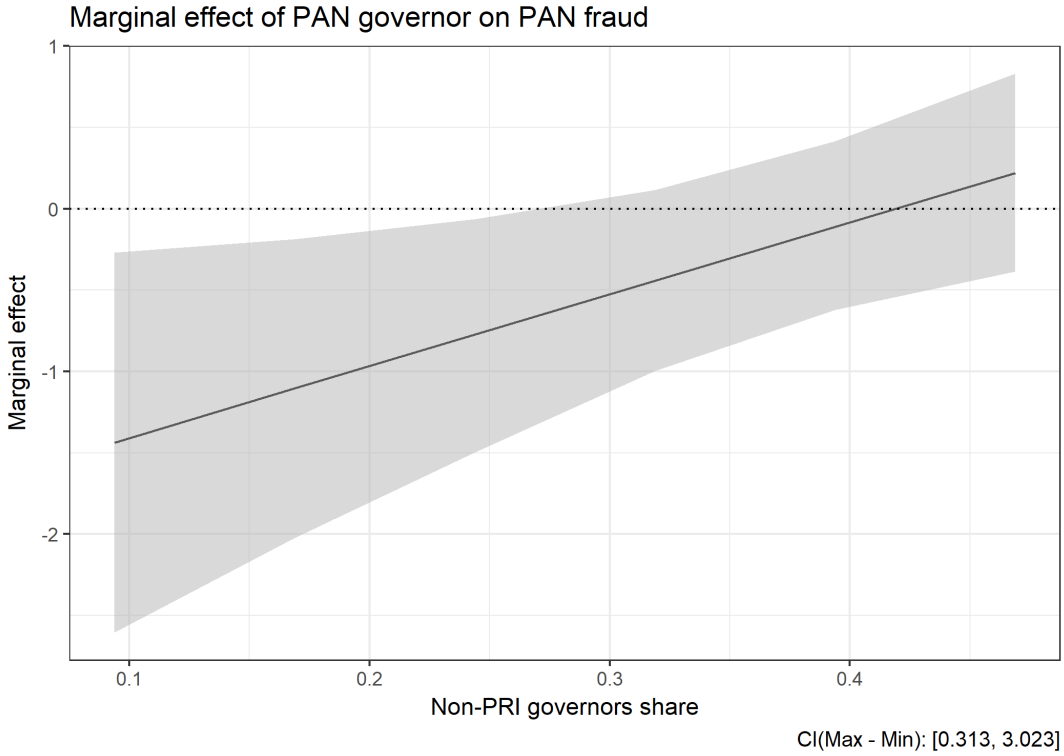

Figure 3.4: Marginal effect of PAN governor on PAN fraud

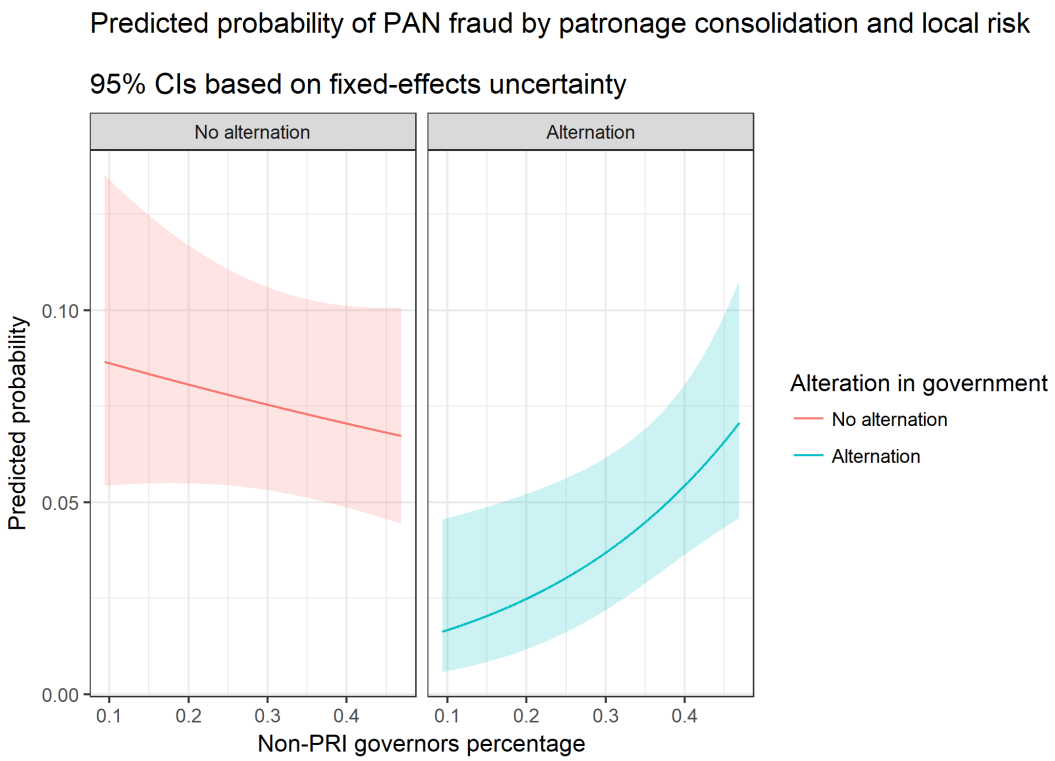

Figure 3.5: Predicted probability of falsification of PAN results

that the reduction in the PRI's consolidated control over patronage resources has only a modest (and statistically insignificant) negative relationship with falsification affecting the PAN. In the time period covered by the dataset, the probability of PAN fraud in a PRI stronghold hovers around 7.5%. This low, but still substantively relevant, probability likely reflects the fact that by the 1990s, the PRI's ability to falsify elections wholesale was already greatly diminished. However, the effect in states where the PRI has lost power is positive and significant, rising from about 3% in the period of greatest PRI control over resources to about 7% when the PRI is weakest. This suggests that the erosion of patronage consolidation, and the associated distribution of resources to opposition parties, allowed the PAN to essentially match the PRI's ability to generate election fraud in the post-hegemonic period. These results are consistent with the consolidation-and-constraint model of principal-agent dynamics in electoral manipulation, as greater access to resources and reduced local risk allow opposition parties to recruit agents who otherwise would have surely cast their lots with the previously dominant party.

3.3.2 Difference-in-differences models

While these results are supportive of hypotheses drawn from the principal-agent model, the nature of the data makes it difficult to draw firm conclusions. The digits test only detects one particular type of manipulation; additionally, the confidence intervals on the predicted probability of fraud in PAN-controlled regions are wide due to the small number of PAN governors during the early years in the dataset. As a result, it is useful to turn to the more focused comparison of two of Mexico's states—Nayarit and Durango—using the difference-in-differences design. This approach has three benefits. First, it allows for the estimation of overall manipulation, using a turnout-based measure. Second, the turnout-based measure provides some idea of the direction of manipulation, unlike the digits-test.[2] Finally, it allows for a more focused comparison by attempting to mimic random assignment of observations in treatment and control groups.

As Table 3.3 shows, these two western states have similar features. While Durango is more populous, the difference between the two regions is well within one standard deviation for Mexican states as a whole (both states fall below the median state, with a population of 2.4 million). Likewise, while Nayarit is considerably more densely populated than its northern neighbor, both states have a relatively low population density compared to Mexico's nationwide median. The two states resemble each other very closely with regard to the levels of development and income, the size of the indigenous population, the share of the population with post-primary education, and the proportion of the population claiming Catholic faith. These similarities make a controlled comparison between the two states plausible. The fact that both states are relatively close to the median nationwide value of many of these variables increases the external validity of the comparison within Mexico overall. Finally, since causal inference in a difference-in-differences design requires that the control case stand in for an unobservable counterfactual(in which the treatment group did not receive the treatment), the usefulness of the design hinges on the assumption that values of the dependent variable in both the treatment and control cases move in parallel before the treatment is applied. This assumption is defended in the appendix.

[2]For example, if the digits-test produces a positive result for the PAN in a PRI-controlled region, it is natural to assume that the PAN's vote-totals have been adjusted downward by PRI officials. However, the statistic itself provides no sense of the direction of the manipulation.

	Nayarit	Durango	Natl. median	St. Deviation
Population	976,000	1,518,000	2,447,000	2,729,000
Population density (logged)	3.58	2.48	3.96	1.3
Gross regional product per cap. (logged)	4.54	5.88	4.84	3.8
Indigenous population	4%	2%	2%	9%
Households with piped water	87%	91%	89%	9%
Post-primary education	40%	36%	39%	10%
Percent Catholic	80%	78%	77%	8%

Table 3.3: Socioeconomic conditions in Nayarit and Durango, average values for 1994-2012

	Dependent variable:	
	Overall manipulation (PRI)	
	(8)	(9)
Turnout	0.589***	0.565***
	(0.018)	(0.020)
PRI municipality	0.009***	−0.006
	(0.003)	(0.005)
Treatment group	−0.012	0.002
	(0.012)	(0.015)
Post-treatment 1 (first alternation)	0.010***	
	(0.002)	
Post-treatment 2 (second alternation)		0.002
		(0.004)
Turnout : Treatment group	0.012	−0.004
	(0.031)	(0.032)
Turnout : Post-treatment 1	−0.113***	
	(0.004)	
Turnout : Post-treatment 2		−0.120***
		(0.007)
Turnout : PRI municipality	0.011**	0.047***
	(0.006)	(0.008)
Turnout : Treatment group : Post-treatment 1	−0.042***	
	(0.003)	
Turnout : Treatment group : Post-treatment 2		−0.055***
		(0.004)
Constant	0.001	0.008
	(0.008)	(0.010)
Observations	39,804	30,175
Log Likelihood	44,683.980	33,538.510
Akaike Inf. Crit.	−89,341.960	−67,051.010
Note:	*p<0.1; **p<0.05; ***p<0.01	

Table 3.4: Difference-in-difference model of PRI manipulation

	(Nayarit)	Control (Durango)	Difference
Pre-treatment period	0.56 (.03)	0.57 (.02)	-0.004 (.000)
Post-treatment period	0.39 (.004)	0.44 (.007)	-0.06 (.000)
Difference	-0.17 (.000)	-0.13 (.000)	-0.055 (.000)

Table 3.5: Difference-in-differences results for PRI manipulation in Nayarit and Durango (Model 9)

	Dependent variable:	
	Overall manipulation (PAN)	
	(10)	(11)
Turnout	0.229***	0.242***
	(0.017)	(0.018)
PRI municipality	0.009***	0.012***
	(0.003)	(0.004)
Treatment group	0.030**	0.035**
	(0.012)	(0.015)
Post-treatment 1 (first alternation)	−0.010***	
	(0.002)	
Post-treatment 2 (second alternation)		0.027***
		(0.003)
Turnout:treatment	−0.058**	−0.067**
	(0.028)	(0.029)
Turnout : Post-treatment 1	0.146***	
	(0.004)	
Turnout :Post-treatment 2		0.062***
		(0.006)
Turnout : PRI municipality	−0.032***	−0.042***
	(0.005)	(0.008)
Turnout : Treatment group : Post-treatment 1	−0.062***	
	(0.003)	
Turnout : Treatment group : Post-treatment 2		−0.074***
		(0.003)
Constant	−0.027***	−0.028***
	(0.008)	(0.009)
Observations	39,804	30,175
Log Likelihood	47,399.980	36,662.070
Akaike Inf. Crit.	−94,773.960	−73,298.150
Note:		*p<0.1; **p<0.05; ***p<0.01

Table 3.6: Models of PAN manipulation in Nayarit and Durango

	(Nayarit)	Control (Durango)	Difference
Pre-treatment period	0.18 (.03)	0.24 (.02)	-0.07 (.000)
Post-treatment period	0.16 (.003)	0.30 (.006)	-0.14 (.000)
Difference	-0.01 (.000)	0.06 (.000)	-0.074 (.000)

Table 3.7: Difference-in-differences results for PAN manipulation in Nayarit and Durango (Model 11)

The expectation is that evidence of fraud for both parties will decline in Nayarit after alternation, relative to Durango. Due to the alternation in government in Nayarit, from PRI to PAN to PRI again, the state is not an opposition stronghold. Rather, it is a competitive area in which partisan contestation is likely to make engaging in manipulation riskier for agents of either party.[3] Table 3.4 shows the regression output for the difference-in-difference models of PRI manipulation; the relationship between turnout and the PRI's absolute vote-share by precinct. Model 8 uses the first alternation in Nayarit, from PRI control to the PAN, as the treatment variable. Model 9 uses the second alternation, when the PRI returned to power. Since this model considers rule by the PAN to be the treatment, it excludes the 2000 and 2003 elections, when the PAN was in power in Nayarit (and the treatment was, in a sense, still being applied).[4] This second transition provides a stronger test of the local-risk aspect of the theory with regard to manipulation on behalf of the PRI, since national conditions as well as partisan control of the state executive and its resources are held constant. Consequently, to test the effect of local risk on pro-PRI manipulation, I calculate the difference-in-differences estimator according to Model 9. The estimated levels of manipulation in all four conditions (pre-treatment, post-treatment, control group, treatment group) are shown in Table 4, along with the difference-in-differences (in bold). During the pre-treatment period, both Nayarit and Durango experience almost identical levels of manipulation on behalf of the PRI. PRI manipulation levels fall in both states during the period after alternation in power in Nayarit, as predicted, as national political conditions become more competitive and the PRI loses ground. However, the shift is more rapid in Nayarit than in Durango, suggesting that local risk has an important interactive effect on agent behavior.

[3]Manipulation in favor of the PAN is likely to occur even in Durango during the post-treatment period, which overlaps with increased national patronage consolidation around the PAN via that party's control of the presidency.

[4]Including data from all elections does not meaningfully change the results.

The effect of alternation in government on PRI manipulation, measured by the difference-in-differences estimate, is statistically significant ($p < .001$). Moreover, it is substantively significant: according to the model, at any given level of turnout, the average absolute vote-share of the PRI should be 5.5 percentage points higher in Durango than in Nayarit. In a region like Nayarit, where the number of registered voters is over half a million, the difference amounts to thousands of votes—enough to sway a close election in that state, especially in Mexico's multiparty system. Furthermore, small fraudulent boosts to a party's vote-share in individual precincts are a known form of electoral manipulation in Mexico; small enough to escape detection at the precinct level, in aggregate they can affect the outcome of national elections (Cantú, 2014).

Tables 3.6 and 3.7 show that estimated PAN manipulation also conforms to the principal-agent model's predictions. The results presented in Table 3.7 indicate that estimated PAN manipulation holds steady in the treatment case, while increasing in the control case. The coefficients for turnout and turnout*PRI municipal control reported in Model 10 suggest that the increase in Durango is driven by PAN-controlled municipalities within the PRI-controlled state. This result within Durango implies that the principal-agent effects already identified between the national and regional levels also transpire between the state and local levels, an avenue for future study. At the same time, the comparison between the treatment and control groups overall shows that estimated manipulation levels are lower in the more competitive state.

These results suggest that increased competition—and thus increased risk—reduces manipulation generally (though particular tactics may increase in use, even as the overall level declines, as the earlier digits test shows). Estimated PAN manipulation levels are lower in Nayarit after the transition to a PAN governor (Model 11) than in PRI-controlled Durango during the same period. This finding is surprising from the perspective of traditional understandings of electoral manipulation. Once the PAN gains control of the machinery of state, should it not be able to use them to its advantage? Why are PAN manipulation estimates lower in Nayarit after alternation than in Durango, where decades of PRI control should have stamped out any PAN efforts to mobilize supporters?

Taken together, the results of Models 8-11 are more easily interpreted under a principal-agent framework driven by patronage and risk. Political uncertainty drives up the cost of manipulation for all agents, making electoral manipulation both less effective and less attractive to principals—even as the PAN takes control of both the state and national executives. Meanwhile, in a politically

stable region like Durango, machine politics remains a relatively effective tool. While the loss of resources associated with national shifts away from PRI hegemony lead to a decline in PRI manipulation in Durango, agents working on behalf of the PRI are relatively confident that the state-level political structure in which they are embedded will endure, insulating them from local risks. By contrast, in more competitive local areas, agents face greater risks as national conditions become more competitive—reducing their incentive to engage in manipulation. These results support Hypothesis 3.

3.3.3 Conclusion

The Russian case, presented in Chapter 3, shows how patterns of electoral manipulation corresponded to the predictions of the principal-agent model as patronage consolidation increased over the course of Vladimir Putin's rule. In that case, pro-regime electoral manipulation increased with the consolidation of resources around United Russia and the presidency, conditional on local political circumstances. The Mexican case complements that analysis, by showing that the principal-agent model is borne out in conditions of decreasing patronage consolidation as well. In the case of Mexico, the probability of fraud affecting the PAN increases modestly in PAN-controlled states, as the PRI loses control of state governorships across the country. The Mexican case shows that elevated national competitiveness does not necessarily cause electoral manipulation to wither away. Rising national fortunes for an opposition party in a new democracy can induce agents to manipulate on that party's behalf, as the opposition gains the ability to distribute patronage rewards to agents who deliver electoral success. However, this result only occurs in the opposition party's newfound strongholds. As in Russia, this effect is multilevel: agents' willingness to manipulate on behalf of the PAN increases only in PAN-controlled strongholds, where agents can credibly expect to be included in rewards and shielded from political or legal punishment.

The Mexican case also offers additional evidence that agents' decision-making is responsible for these shifts in electoral manipulation over time. Unlike in Russia, Mexico provides variation in party leadership at the national and state levels. This variation is exploited both in the analysis of the patterns of ones-digits in each party's returns, and in the difference-in-difference model of turnout and absolute vote-share. However, it is especially informative in the latter model. Since the difference-in-difference model compares two states over the same time period, measured when both were governed by the PRI, the model holds national-level and state-level principals constant.

As a result, the reduction in PRI- and PAN-associated manipulation estimates in the treatment case, following a double alternation in state government, is suggestive of an agent-driven dynamic. Increased competitiveness is understood to intensify principals' interest in electoral manipulation; the fact that competition appears to push manipulation levels down in the more competitive state indicates that agents' wariness of exposure and punishment limits the ability of principals to generate as much manipulation as they might like.

CHAPTER 4

Patronage consolidation and deflationary manipulation in Ukraine

Of the three cases considered here, Ukraine is in several ways the most difficult in which to test the consolidation and constraint model of electoral manipulation. Parties in Ukraine, especially those with roots in its western regions, have tended to be personalized and short-lived, making it more difficult to track their electoral performance over time. Additionally, over the time period for which electoral data are available (2002 to 2014), Ukraine were beset by multiple political crises. The two most significant of these include the 2004 Orange Revolution and the 2014 Euromaidan revolution and subsequent military conflict in the east. These are by no means the only crises to befall the country, however, and it is telling that the so-called Cassette Tape or Kuchma-gate scandal—which implicated President Kuchma in a variety of high-level misdeeds including the abduction and murder of a critical journalist—is considered a lesser incident in recent Ukrainian political history. While these patterns make it more difficult to analyze patterns of electoral manipulation than in Russia, for example, where a single ruling party predominates, it also offers opportunities to test the theory in the context of large shifts in patronage consolidation.

In particular, the Ukrainian case provides a useful test against the hypotheses of the local-information model of electoral manipulation (Rundlett and Svolik, 2016).[1] The local-information model claims that when election-manipulating agents perceive their patron's popularity to be low locally, they extrapolate from this information that their patron is likely to be unpopular nationally and begin to doubt that she will win the election. As a result, they become less likely to engage in electoral manipulation, fearing that patronage rewards will be revoked and the risk of punishment will increase. This theory produces two testable hypotheses that compete with those of the consolidation and constraint model. First, it expects that agents in local strongholds will

[1] Ukraine is less effective as a test of the signaling model of manipulation, since it does not meet Simpser's requirements for excessive manipulation to occur: an unconstrained government and a dominant ruling party.

continue to engage in manipulation on behalf of the locally dominant party, even if national political conditions worsen for that party. As will be shown below, this pattern does not emerge in Ukraine, where manipulation efforts against the pro-eastern Party of Regions decline dramatically—even in pro-western regions—during a period of high patronage consolidation. Second, the local-information model predicts that agents in areas where a party is unpopular will refrain from manipulation on behalf of that party, even if that leader is dominant at the national level; instead, evidence of manipulation in favor of pro-western parties can be seen even in highly pro-eastern regions in the aftermath of the Maidan protests.

In both cases, the results of election-forensic analysis of data from Ukraine support the consolidation and constraint model, and do not uphold the local information approach. I test these two hypotheses using precinct-level election results for Ukraine's major pro-eastern party in each election year from 2002 to 2014.[2] Analysis of the east-party data is more likely to be useful for testing the theory than the pro-western parties. First, the eastern parties—based in the more industrial part of the country—are more strongly rooted in patronage politics than the major pro-western parties. And it is the pro-eastern Party of Regions that provides the only instance during the time period studied where a party gains unambiguously consolidated control over state and para-state patronage resources—the 2012 legislative election during which the Party of Regions holds the presidency and control over the legislature. This control over patronage networks then rapidly deteriorates in the wake of the 2014 Euromaidan protest movement, annexation of Crimea, and prolonged conflict in the Donbass region. This trajectory makes it possible to test the effect of patronage consolidation on east-party results. The pro-western parties do not achieve high levels of patronage consolidation, due to splits between the major pro-western leaders, constitutional reforms, and a societal base of support less dependent on patronage resources.

Lastly, the Ukrainian case also offers an opportunity to test the theory on a different class of manipulation techniques. While the ruling party in Russia appears to mostly engage in inflationary manipulation techniques (at least on election day itself), deflationary tactics appear to predominate in Ukraine. In addition to mobilizing tools like vote-buying or voter pressure, which can only be

[2]In most cases this party is the Party of Regions; however in 2002 it the Communist Party of Ukraine, and in 2014 the Opposition Bloc (essentially the rump Party of Regions following the Maidan crisis).

employed where a principal's patronage network extends, party's in Ukraine have also tried to use 'technical parties' and 'clone candidates' to divert votes away from their genuine opponents. More importantly for this study, such techniques have also allowed parties to stack regional and local electoral commissions with pliant supporters; enabling fraud and other forms of electoral malpractice. Testing the consolidation and constraint model in this context indicates that agents weigh the benefits of patronage against local risks even when employing these kinds of techniques, which may be subtler and harder to observe than tools like ballot-stuffing.

In sum, this chapter shows that deflationary manipulation is characteristic of elections in Ukraine, and that the local information model does not accurately predict those patterns of electoral manipulation. Using two election-forensic techniques, it demonstrates that deflationary techniques deployed against pro-eastern parties and candidates are less likely in regions with higher local constraints against such manipulation, and respond as predicted to shifts in patronage consolidation. That is, during the Yanukovych presidency when patronage resources were highly consolidated around the Party of Regions, evidence of deflationary manipulation against that party drops dramatically, even in highly pro-western regions. In turn, in elections after the Euromaidan crisis, evidence of deflationary manipulation against pro-eastern candidates increases, especially in pro-eastern regions. These results contradict the expectations of the local information model, and support the theory articulated here.

4.1 Context: Ukrainian politics and elections

Though analysts should be wary of over-emphasizing the point, Ukraine's political divisions are largely regional. Voters in the country's east have generally supported parties and candidates that adopt a more interventionist economic policy and take a more favorable view toward Russia. By contrast, voters in the west have usually supported parties and candidates with economic and foreign policies that are oriented towards the market and towards Europe (Birch, 2000). The two regions are characterized by ethnic and linguistic divisions, with the west home to more ethnic Ukrainians and Ukrainian-speakers, while Russian ethnicity and language is more common in the east.

These differences can be attributed, in part, to historical legacies: much of western Ukraine was ruled by the Austro-Hungarian Empire prior to World War I, and by Poland, Romania, or Czechoslovakia during the interwar years. Government policy in these regions, before they were

incorporated into the Soviet Union in 1939, was relatively democratic and favorable to the development of Ukrainian national identity. By contrast, eastern Ukraine was part of the Russian Empire, which emphasized a Ukrainian identity that was a regional subset of the broader Russian ethnicity and language (Katchanovski, 2006). Despite the well-documented importance of language (Fournier, 2002; Kulyk, 2011) and ethnicity (Barrington, 2002) in Ukraine, however, the regions' voters are not homogeneous blocs. For example, using a survey experiment, Frye (2015) finds that a hypothetical candidate's position on closer ties with Europe or Russia is more likely to drive a voter's preference than either the candidate's reported ethnicity or language. Furthermore, many of Ukraine's eastern regions are more diverse linguistically and ethnically than is generally reported (Sasse, 2010).

Finally, as in other post-communist countries, Ukraine's economic transition created a class of oligarchs who were able to gain control of the state's major economic assets. In Ukraine, these oligarchs are often linked in regional clans and can use their resources to back local politicians. These patterns can be seen even in independent Ukraine's earliest elections, but intensified following the Orange Revolution (D'Anieri, 2011). Spoken language in Ukraine is an inexact proxy for ethnicity, which in turn is an inexact proxy for identity and political orientation (Sasse, 2001).

While regional attitudes follow the general contours described above, it is important to note that major Ukrainian political parties have not been characterized by stark ideological conflicts so much as by regional loyalties, affiliation with particular leaders, and the distribution of patronage. Parties in Ukraine are highly personalized, and frequently depend on the resources, reputation, and charisma of particular leaders for their electoral success (Rybiy, 2013). This is especially true of the western-oriented parties associated with Viktor Yushchenko and Yulia Tymoshenko (Kuzio, 2012; Kudelia and Kuzio, 2015). This personalization contributes to parties' ideological fluidity[3] and voters' difficulty in placing parties on an ideological spectrum (Rybiy, 2013).

This weak ideological commitment on the part of voters, combined with social inequality and overlapping political and economic responsibilities of local leaders (Allina-Pisano, 2010), allows parties to rely on 'administrative resources' like access to state employment, favorable (or unfavorable) business treatment, and selective law enforcement to build and maintain networks of supporters

[3]Some parties are exceptions to this rule: the ideologically cohesive Communist Party of Ukraine and Svoboda (Freedom) did well in the 2012 parliamentary election, winning 13% and 10% of the vote, respectively (Rybiy, 2013).

(D'Anieri, 2011; Protsyk and Wilson, 2003). Tools like these give political leaders the ability to raise funds, mobilize voters, and manipulate elections (Hale, 2003). These tools are usually held by regional or local actors in Ukraine, rather than being institutionalized at the national level (Way, 2005). In particular, such methods are characteristic of the pro-eastern parties exemplified by the Party of Regions (Kudelia and Kuzio, 2015; Kuzio, 2012).

A large public sector and a relatively compliant judiciary (Kudelia, 2012) provide ample opportunity for the executive branch to apply pressure to voters and opposition figures in Ukraine. Post-Soviet reforms subordinating regional governors to the president created "a strong vertical executive power running from the president down to the village level"; in order to retain office, regional and local officials were required to mobilize voters on behalf of their bosses (Konitzer-Smirnov, 2005, p. 7). As in Russia (Frye et al., 2014), state employees and workers in industries that are vulnerable to state regulation are susceptible to pressure from above. In one particularly stark example, school children at a school in eastern Ukraine informed their parents that their teachers would be fired if the parents did not support the government in an upcoming election (D'Anieri, 2007). During the 2004 presidential election, which sparked the Orange Revolution, the government leaned on administrative resources to encourage "the police, the army, prisons, public universities, schools, and hospitals, to campaign and vote for Prime Minister Viktor Yanukovych," who enjoyed the backing of the sitting president and many Ukrainian oligarchs (Katchanovski, 2008). Moreover, government officials engaged in tampering with the electronic results of the second round of the election; the combined efforts of mobilization and falsification appeared sufficient to tip the election in favor of Yanukovych and against his pro-Western rival Viktor Yushchenko—a rare example of a stolen election (Simpser, 2013).The Party of Regions, which was led by Yanukovych and came to be the dominant party in eastern Ukraine and Crimea, relied on a mix of state administrative resources, political patronage, and intra-elite bargaining to maintain its support in the region (Kudelia and Kuzio, 2015; Myagkov et al., 2009). Patronage, clientelism, and voter pressure are all common features of the Ukrainian election system, and—like Russia—it is characterized by a political hierarchy that links the president to local officials through intermediaries like regional officials and oligarchs. As a result, we might expect to see widespread electoral manipulation under either the signaling or local-information frameworks.

One peculiar feature of election management in Ukraine is an apparent emphasis on deflationary

tactics; that is, efforts to reduce one's opponents vote-share rather than (or in addition to) inflating one's own. Ukrainian parties have attempted to influence election results by using manufactured parties and candidates to drain votes away from rivals and to gain additional influence on election commissions. Ukrainian elections have often been characterized by an abundance of so-called 'technical parties,' small parties artificially created by main parties in order to divert votes away from their opponents. One such technical party, which voiced strong opposition to Yanukovych and the Party of Regions and whose leader was reminiscent of former Orange-Revolution hero Yulia Tymoshenko, diverted as much as 300,000 votes from the nationalist party UDAR, depriving it of six to eight seats in parliament (Kovalov, 2014). Perhaps more important than confusing voters and diverting votes, however, is the role that technical parties play on Ukraine's election commissions.

Ukraine's election law divides the country into 225 district election commissions. Rules determining membership on the committees have varied from year to year, but have generally granted automatic representation to representatives of the parliamentary parties, with remaining seats filled by non-parliamentary parties via lotteries. This setup allows for small, hastily registered parties—operating informally on behalf of major parties or politicians—to gain representation on the district commissions. This problem became especially egregious in 2012, when the Central Election Commission implemented a change in the lottery process five days before the drawing: instead of individual lotteries for each district commission, a single lottery would be held that would determine the makeup of all 225 commissions. As a result, small parties that had nominated only one or two candidates nationwide gained representation on all district commissions, while larger opposition parties were excluded (Kovalov, 2014; OSCE Office for Democractic Institutions and Human Rights, 2013). District election commissions then implemented a similar nominating procedure for all their subordinate precinct election commissions.

This system can be especially problematic when combined with the deep patronage roots enjoyed by the Party of Regions in eastern Ukraine, which it used to gain outsize influence on the commissions. In one notable example, OSCE observers in a single election district of Donetsk oblast' determined that 1,667 of the 2,551 precinct election commissioners in the district worked for an enterprise headed by the Party of Regions candidate—meaning that more than two-thirds of precinct commissioners presided over balloting for their employer (OSCE Office for Democractic Institutions and Human Rights, 2013). While the presence of technical representatives on election commissions was perhaps

most extensive in the 2012 campaign, it figured prominently in previous elections as well. In the first round of the 2004 election, technical candidates had the right to nominate up to 66,000 members of precinct election commissions; while both major candidates took advantage of technical candidates, the OSCE concluded that Viktor Yanukovych benefited the most, finding that supportive technical candidates gave him "a de facto majority on election commissions" (OSCE Office for Democractic Institutions and Human Rights, 2005, p. 9). The 2010 election, in which Yanukovych was first elected, was relatively free of electoral fraud, with candidates emphasizing voter mobilization (Herron, 2011), though the analysis presented here suggests that some of these mobilization efforts may have been extra-legal and/or characterized by the misuse of state resources (OSCE Office for Democractic Institutions and Human Rights, 2010).

Partisan control of election commissions at various levels facilitates electoral manipulation in various forms, which observers frequently witnessed in Ukraine. In 2004, the OSCE observed—among other issues—ballot box stuffing, irregularities with absentee voting, large numbers of voters being turned away from the polls, implausible turnout figures, and suspicious tabulation process. All of these forms of electoral manipulation are either implemented or influenced by election commissioners at the precinct, territorial, or central level. Similar problems were observed by the OSCE in 2012, when observers negatively assessed the vote count in eleven percent of monitored precincts, and tabulation was negatively assessed in almost half of the 161 district election commissions monitored (OSCE Office for Democractic Institutions and Human Rights, 2013, pp. 27-32).

4.2 Theory: Consolidation and constraint in Ukraine

The above review makes clear that the conditions exist in Ukraine for parties and candidates to make use of illegal electoral manipulation. International election observer reports indicate that such tactics were substantial in the legislative elections of 2002, 2012, and 2014, as well as during the first two rounds of the 2004 presidential election, with considerable regional variation in the severity of manipulation efforts (OSCE Office for Democractic Institutions and Human Rights, 2013, 2005). Other elections were considered to be markedly cleaner (Hale, 2010; Katchanovski, 2008; OSCE Office for Democratic Institutions and Human Rights, 2007; OSCE Office for Democractic Institutions and Human Rights, 2010, 2006). While the local-information model attempts to explain this variation via the popularity of candidates in agents' local territories, it is more accurately explained through a focus on local risks to agents and shifts in the consolidation of patronage networks around the Party

of Regions.

4.2.1 Local constraints in Ukraine

Given the divisions of the country, local constraints in Ukraine must be conceptualized for each broad political group, referred to here by the shorthand terms 'pro-western' and 'pro-eastern.' Risks will vary not only by local political conditions, but by party group; in one particular locality the risk of exposure might be severe for pro-western agents, but non-existent for pro-eastern agents. For example, the pro-eastern Party of Regions has been able to exert influence over local courts in regions it controls (Katchanovski, 2008), reducing the risk that local agents will face punishment for supporting the party in illegal ways but perhaps increasing the risk for supporters of pro-western parties. The Party of Regions inherited much of the political culture and resources of the Communist Party of Ukraine, and used these advantages to build a locally dominant coalition of government administrators, red directors (communist-era managers of large firms), and local business / oligarchic interests (Kudelia and Kuzio, 2015; Zimmer and Haran, 2008). As a result, the heartland of the PoR is politically sealed off (Osipian and Osipian, 2006).

The situation is more complicated in regions where pro-western parties tend to dominate. Machine politics, essential to delivering votes in places like Donetsk and Luhansk in the east, were difficult to export to territories in Western Ukraine (Sushko, 2002; Zimmer, 2005), due in large part to a more politically active civil society there (D'Anieri, 2005). The presence of a more active civil society and the relative absence of locally dominant economic interests led to the development of more highly personalized parties, primarily oriented around the figures of Yushchenko and Tymoshenko during this period (Kudelia and Kuzio, 2015; Kuzio, 2012). As a result, these two blocs competed with each other for votes within their territories (Kuzio, 2013), limiting the ability of either bloc to develop the kind of local political monopoly that reduces risks toward election manipulating agents.

The development of active civil society in the west accelerated as a result of the Kuchma-gate crisis, and was nurtured by opposition parties during the Orange Revolution (Kudelia, 2007). However, the historical roots of civil society and multiparty democracy run deeper in Western Ukraine than in the East. During perestroika, dissidents and former political prisoners in Western Ukraine formed Rukh (the Ukrainian Popular Movement for Restructuring) to challenge the Communist Party; while Rukh gained popularity in Kyiv and central Ukraine, it never gained much of a foothold in the east (Kuzio, 2010). In surveys from the early post-Soviet period, respondents from western Lviv were

twice as likely as residents of Donetsk to attempt to "resolve social problems" by contacting mass media, contacting officials, or joining an organization, and three times as likely to have signed a petition or participated in a demonstration (Aberg, 2000). These connections persisted through the Orange Revolution: protesters in that movement were motivated less by democratic ideology and more by the fact that they were highly networked, with higher incomes, and less dependent on the state (Beissinger, 2013).

In sum, local risks vary considerably across Ukraine by both party and region. The risk of exposure for pro-western agents is especially high in eastern regions where the political machine organized around the Party of Regions predominates, due to that party's success in creating a subnational enclave prior to the Euromaidan crisis, Russian intervention, and civil war. However, the existence of competing pro-western parties and a robust civil society in many western regions makes electoral manipulation difficult to achieve undetected in those regions as well. These differences are largely structural, as described above; they rest on broad historical and social factors rather than on parties' see-sawing electoral fortunes. As a result, the level of risk in a particular locality does not shift much over time in Ukraine. Instead, shifts in manipulation patterns over time are due largely to major changes occur in the consolidation of patronage during the period studied.

4.2.2 Patronage consolidation

Soviet Ukraine was characterized by heavy reliance on patronage and clientelism, transmitted by informal networks operating within the formal Communist Party and command economy structures in a system Kitschelt (1995) terms patrimonial communism. This framework persisted in post-Soviet Ukraine, as many political and bureaucratic officeholders remained in place, while communist-era managers and officials became private-sector owners of capital (Zimmer and Haran, 2008). Especially in the heavily industrialized eastern parts of the country, where small-scale enterprises are less common (Aslund, 2005), large portions of the population are dependent on state- or employer-based patronage (Zimmer, 2005). A power vertical has been solidly established in the eastern part of the country, based on an alliance of regional and local administrative officials and business actors (Zimmer, 2005). Nationally, the pro-presidential constitution of 1996 subordinated regional governors and local executives to the president (Konitzer-Smirnov, 2005), a structure which remained largely unchanged under the post-Orange constitution.

However, the Cassette Scandal crisis—in which illicit recordings of the president allegedly ordering

a kidnapping, among other unsavory details, were made public—limited the ability of President Kuchma to further consolidate control over the patronage resources and hand them to his preferred candidate in the 2004 presidential election, Viktor Yanukovych. As a result of the ensuing political crisis, the party system fractured, oligarchic alliances were ruptured, momentum toward a super-presidential constitution was scuppered, President Kuchma's succession plans were thrown into turmoil, and an opposition movement based in civil society began to form (Kuzio, 2007). The scandal helped lay the foundations for the 2004 Orange Revolution, in which hundreds of thousands of citizens took to the streets to protest electoral manipulation in the presidential elections. The subsequent opposition victory in a repeat election upended the party structure, and helped usher in a new constitution that divided power more evenly between the presidency and the parliament.

As part of a compromise following the Orange Revolution, a new constitution was adopted which greatly increased the patronage capabilities of the parliament and prime minister. As a result of the new constitution, the parliamentary majority gained more discretion over the nomination of prime ministers, more influence over the defense and security ministries and the prosecutor general, and shifted much executive staffing power away from the president and to the cabinet (Christensen et al., 2005). This shift reinforced the de facto competing-pyramid structure of patronage in the post-revolutionary period, by expanding and legitimizing the influence of the parliamentary majority while still retaining some patronage powers in the office of the presidency (Hale, 2014).

The competing pyramid structure would not survive long into the Yanukovych presidency, when the Party of Regions was eager to press its advantage in patronage resources. After defeating Tymoshenko's network in the 2010 presidential election, Yanukovych moved swiftly to encourage elite defections within the Rada, building a pro-presidential coalition that secured control of the premiership (Hale, 2014; Kudelia, 2012). Subsequently, Yanukovych was able to win restoration of the pre-revolution constitution favoring the president; he rapidly reconsolidated patronage networks that had become fragmented during the Orange period.

This centralizing period would be short-lived however, as massive crowds during the 2014 Euromaidan crisis helped depose Yanukovych, leading to the seizure of the Crimean peninsula by Russia, the de facto secession of two of Ukraine's most populous and industrialized regions, a prolonged civil war, and the effective collapse of the pro-eastern Party of Regions. The patronage networks that had helped propel the success of the Party of Regions locally and nationally began to

unravel (Hale, 2014).

In this context, to say that the consolidation of political patronage varies wildly over time is an understatement. Presidents Kuchma and Yanukovych, who drew their political support in large part from the eastern political machines, regularly sought to integrate other regions of Ukraine into the power vertical (Kudelia, 2012; Pleine, 2016). With the exception of applying pressure to state employees at election time, it proved challenging to export the 'Donetsk' model to wider Ukraine (Zimmer, 2005). At the same time, variation in consolidation tracks closely with changes in government: pro-eastern parties and presidents have generally presided over periods of growing consolidation, while the more western-oriented President Yushchenko oversaw the period of greater parliamentary influence. As a result, the influence of partisanship and patronage consolidation largely overlap empirically.

In addition to the shifting consolidation of state-based patronage, analysts of Ukrainian politics must also contend with a complex arrangement oligarchic 'clans,' which deploy their resources to support favored parties. Unlike in Russia, where the major oligarchs generally do not risk challenging the Kremlin Ukraine's oligarchic clans have been more fractious. Focusing on pro-eastern parties helps navigate this dynamic, since the pro-eastern oligarchic clan is relatively more unified than their pro-western counterparts. During Kuchma's presidency, three regional oligarchic clans became influential in politics: the Dnipropetrovsk network, the Donetsk network, and the Kyiv network. All three were generally aligned with Kuchma until the Orange Revolution (Pleine, 2016), and used their resources to influence election outcomes (Katchanovski, 2008). The revolution split the political-oligarchic patronage networks into three competing camps—one each aligned with Viktor Yushchenko, Yulia Tymoshenko, and Viktor Yanukovych—a framework that persisted until the 2010 presidential election (Hale, 2010). Even after being cast into the political wilderness nationally by the Orange crowds, Yanukovych and the Party of Regions could rely on regional patronage networks and elected local mayors to retain influence in the east (Hale, 2010).

When Yanukovych assumed the presidency in 2010, the fractiousness of the opposition coalition of oligarchs gave way once again to a more united patronage pyramid around the presidency and the Donetsk clan. In turn, this informal patronage network collapsed as a result of the Euromaidan and subsequent civil war, generally reconstituting itself around oligarch Petro Poroshenko after his 2014 presidential victory (Pleine, 2016). Poroshenko, though his own election was largely clean, used

patronage resources to good effect (especially in the East, where networks still remained largely intact) in the subsequent legislative elections (Fedorenko et al., 2016).

In sum, Ukraine is a case where many of the conditions are in place for widespread electoral manipulation to occur. Patronage systems are embedded in society, especially in eastern regions of the country. Presidential influence over governors potentially unites the state apparatus in a network that can mobilize patronage resources to deliver votes for the incumbent. There are deep links between the state and business interests (Kudelia, 2012). Nevertheless, the actual level of manipulation has varied considerably between elections and across regions, according to international monitors and experts (Hale, 2010; Herron, 2010, 2011, 2014; Katchanovski, 2008). This variation can be explained largely by shifts in patronage consolidation. Patronage is substantially less consolidated than in Russia; there is no ruling party akin to United Russia and oligarchic clans compete to influence election results. The constitution has at times fostered competition between patronage networks affiliated with the president and those affiliated with the prime minister. Local constraints are generally higher where pro-Western parties prevail than in pro-Eastern regions, but were elevated generally by the electoral reforms that were in force from the third round of the 2004 presidential election through the 2010 presidential election.

4.2.3 Hypotheses

Within the Ukrainian context, as discussed in the literature above and reinforced using new data below, electoral manipulation in Ukraine is largely deflationary. When focusing on election results for the Party of Regions and its relatives, this implies the need to conceptualize patronage reward and local risk for the perspective of pro-western agents—those who are engaging in manipulation to reduce the party's electoral success. Consequently, local risks are higher in regions where the Party of Regions is more dominant; such areas should produce less manipulation against eastern parties. On the other hand, lower risk for pro-western agents operating in regions where western parties dominate will likely result in more evidence of deflationary manipulation against eastern parties.

However, agents make evaluations about risks in the context of expected patronage benefits; behaviors that might be too risky to attempt when patronage offers appear uncertain may look more appealing in light of a highly consolidated patronage network with apparent staying power. In the Ukrainian context, such a scenario occurred with the success of Viktor Yanukovych in the 2010 presidential election coupled with subsequent legal and constitutional reforms solidifying the

president's ability to dispense patronage. During this period, patronage consolidation increased on the Party of Regions; this is expected to draw agents away from participation in pro-western electoral manipulation and make manipulation against the Party of Regions less likely.

The interaction effect of these two dynamics—local risk and patronage consolidation by the Party of Regions should both deter manipulation against that party—is summarized below. The hypothesis holds that in regions where local risks to pro-western agents is high, manipulation against pro-eastern parties will be rare. On the other hand, it should be fairly common in places where risks to western agents are low. When patronage networks become more consolidated under the pro-eastern Yanukovych, however, the pull of that network should draw agents away from participation in anti-eastern manipulation efforts; instead, the theory predicts they will either join the pro-eastern network, or sit out the election.

> Hypothesis 1: Greater patronage consolidation during the Yanukovych presidency results in reduced deflationary manipulation against pro-eastern candidates; this reduction is largest where local risks are low.

The sudden loss of patronage consolidation brought on the Euromaidan crisis should have a reverse effect. By making pro-western patronage dramatically more appealing, the fragmentation of the Party of Region's network should entice agents in pro-eastern regions to engage in manipulation that deflates eastern candidate's vote-shares. That is, even if risks remain relatively constant, the reorientation of patronage networks around pro-western parties should make it more likely that agents work to support western parties. In places where local risks to pro-western agents are low, the shift will have a smaller effect; in such regions, low risks already make it likely that agents will engage in manipulation even when western patronage consolidation is low.

> Hypothesis 2: Reduced patronage consolidation during Euromaidan crisis will result in increased deflationary manipulation against pro-eastern candidates; this increase will be largest where local risks are high.

4.3 Data and methods

To test these hypotheses, I draw on precinct-level results from nine elections in Ukraine from 2002 to 2014. This includes three presidential elections—the third round of the 2004 elections, along

with both rounds of the 2010 and 2014 elections—and four legislative elections (2002, 2006, 2007, and 2012). Unfortunately, the dataset excludes the first two rounds of the 2004 presidential elections, for which precinct-level results are not available. Each election-year includes data from approximately 30,000 to 35,000 precincts nested within Ukraine's 27 regions. As a result of the annexation of Crimea and the conflict in Eastern Ukraine, the legislative and presidential elections in 2014 draw on approximately 28,000 precincts within 23 regions—Crimea, Sevastopol, Donetsk, and Luhansk regions drop out of the data. This precinct-level data is used to conduct election-forensic estimates of falsification and overall evidence of electoral manipulation. Unlike in the Russian case, I am unable to estimate levels of vote-buying and related tactics, since Ukraine did not release precinct-level numbers of absentee or mobile-ballot-box voting until the 2014 elections. Explanatory and control variables are taken at the regional level.

4.3.1 Dependent variables

Two dependent variables are estimated by region. First, a turnout test is used to estimate overall levels of manipulation (Myagkov et al., 2009). Second, a vote-share test designed by Rozenas (2017) is used to estimate the number of precincts in each region that may have been subject to falsification. To estimate the overall degree of manipulation, I conduct turnout tests on the results for the major pro-eastern party in the election. These tests assume that, in a clean election, a party's absolute vote-share (the party's number of votes divided by the number of registered voters) should increase consistently across precincts within a territory, as precinct turnout increases. This approach assumes homogeneous precincts, an assumption which is bolstered by testing precincts within regions or through the use of relevant socioeconomic control variables to weed out potentially confounding relationships (Deckert, 2013). I employ both approaches here.

First, I use multilevel models to estimate the relationship between turnout and absolute vote-share for both parties, for each region-year, along with standard errors for those coefficients. The coefficients generated at this first stage are then used as dependent variables in a second-stage model. Turnout coefficients in the Ukrainian case appear systematically different from those in the Russian case, discussed in a previous chapter. While the ruling United Russia party regularly produces large turnout coefficients, suggesting that the party draws relatively more votes from the population as turnout increases—likely illicitly—major parties in Ukraine frequently exhibit negative turnout coefficients. A negative coefficient indicates that a party systematically loses absolute vote-share as

turnout increases; that is, it draws fewer votes in absolute terms when turnout is high than when turnout is low—a suspicious outcome, though one that is of course not impossible under a clean election. A notional example helps clarify this.

A party's absolute vote-share per precinct is the number of votes it receives divided by the total number of registered voters in that precinct. Turnout is the total number of votes cast divided by the number of registered voters. If there are 1,000 registered voters in each precinct, a precinct with ten percent turnout will have 100 total voters, and a precinct with ninety percent turnout will have 900. Assuming that a party has an approval rating of about forty percent across all precincts, under a clean election the party will receive about forty votes in the low-turnout district, and about 360 in the high turnout one. The corresponding turnout coefficient, represented by the slope of the line between the two points, will be about 0.4. For the party to produce a negative turnout coefficient, significant deflation in vote-share must occur; in other words, the number of votes it receives in high-turnout regions must be exceedingly low. In the current example, if the party wins forty percent of votes in the low-turnout precinct and one percent of the votes in the high turnout precinct (i.e. 9 out of 900 votes), it will produce a small negative turnout coefficient of -0.04. In other words, to earn even a small negative coefficient a party must suffer dramatic losses in absolute vote-share as turnout increases. Here, the party wins 40 out of 100 votes in the low-turnout precinct, and only 9 votes out of 900 when turnout is high.[4]

Negative turnout coefficients for Ukraine's major parties are not small, as Figure 4.1 illustrates. Large numbers of precincts show turnout coefficients that are not only negative, but substantially so. Such an outcome is highly unlikely to occur in a clean election, as discussed above, but a small positive turnout coefficient cannot be easily regarded as suspicious—a party might simply have a very low latent level of support in a region. As a conservative indicator of possible deflationary manipulation, then, I code a dummy variable that takes on a value of one for regions with a negative turnout coefficient. This binary variable, deflationary manipulation, is used as a dependent variable in logit models.

[4]The alternative source of a negative coefficient, in which the party's vote-share in the low-turnout precinct is highly inflated, is not mathematically possible. In the running example, assuming that the party wins forty percent of votes in the high-turnout precinct, it would have to win 390 votes in the low-turnout precinct (where only 100 votes are cast) in order to produce a small negative turnout coefficient.

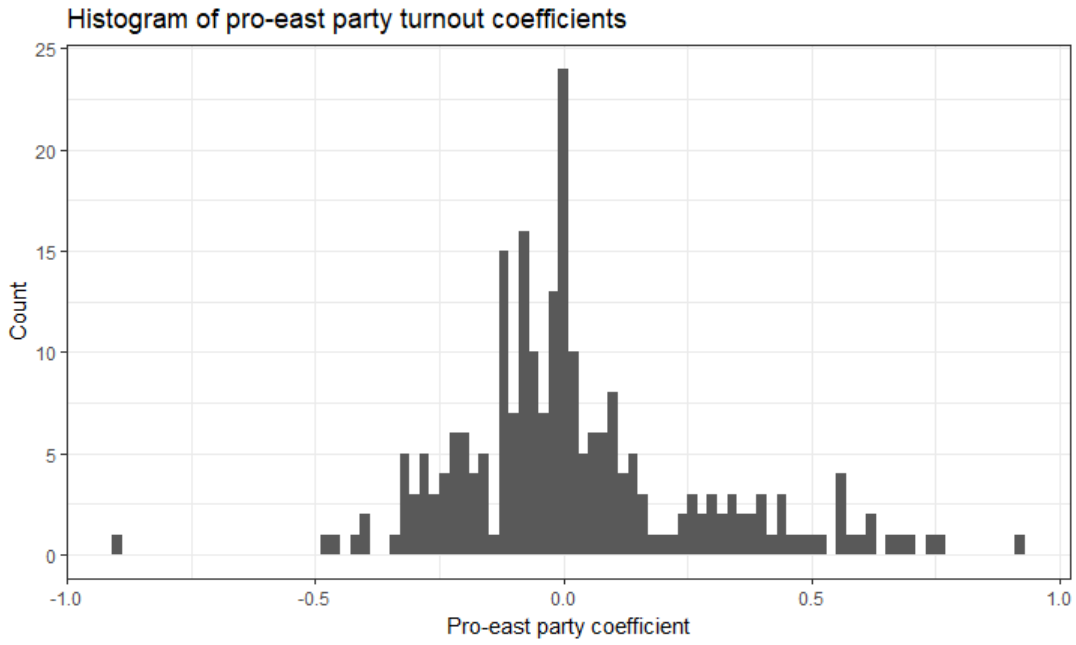

Figure 4.1: Histogram of turnout coefficients for major pro-east parties (2002-2014)

The vote-share test, used for the second dependent variable, is conducted as follows. For each election year, the precinct-level results are broken down by region. Within each region-year, the results are broken out by party. I examine the results for the primary pro-eastern party for the election year. The Rozenas test is then conducted on the results for each party, by region, according the method described below.

In brief, when the distribution of a party's vote-shares by precinct is plotted, the distribution will exhibit random peaks that represent a clustering of precincts around particular vote-share values (see Figure 4.2). By random chance, for example, a large number of precincts might report vote-shares of 32 percent for the party, resulting in a peak at that value. In an election without falsification, these peaks should be randomly distributed based on voters' stochastic decisions to turn out and cast their ballots one way or another. However, a particular kind of falsification will distort these random patterns and produce statistically unlikely vote-share clusters (possibly, but not necessarily, at values divisible by 5—55%, 60%, and so on). The test compares the 'spikes' in the actual vote distribution to those produced randomly through bootstrapped samples of the observed precincts. By comparing the real distribution with the hypothetical distributions, it is possible to estimate the number of precincts per region where fraud is suspected.

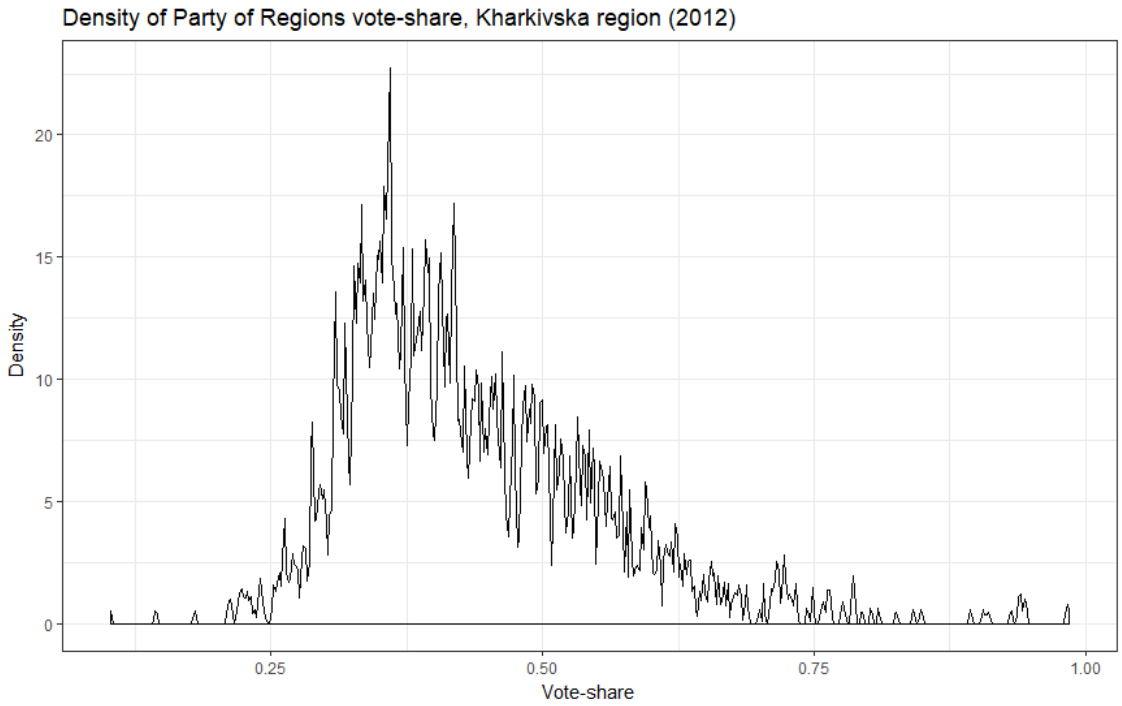

Figure 4.2: Vote-share density for the Party of Regions

Such non-random clusters can result from falsification due to human propensity to target whole numbers when making up figures, but are more likely to reflect agents' fulfillment of direct specifications from their principals (Rozenas, 2017). Consequently, while this election forensic technique is only an indicator of falsification, it is especially well-suited to answering the question at hand since it allows for a test of how much agents engage in the kinds of behavior that can signal loyalty to particular patrons. The measure is used to produce a count of suspicious precincts, which is used as the dependent variable in Poisson models.

4.3.2 Explanatory variables

In order to test the theory, explanatory variable must capture patronage constraints and local constraints against illegal electoral manipulation. Local constraints are operationalized, following Harvey (2016), using the regional legislative margin of victory between the largest parties in regional legislative elections and their largest political rival. This measure is lagged, so that it precedes the national elections that produce estimates of manipulation that serve as dependent variables. Despite Ukraine's unitary system, elected regional legislatures do provide an opportunity for out-parties to place constraints on the governing party (Romanova, 2013). Margins of victory in regional elections

are also indicative of the underlying degree of contestation, which is undergirded by civil society activism, media coverage, oligarchic influence, and other elements of local constraint.

The Ukraine case, with its dramatic political history, provides one unambiguous case of elevated patronage consolidation during the period covered here: the 2012 legislative election, which takes place during the Yanukovych presidency but prior to the Euromaidan crisis. This is the only instance in which the political institutions of the country align with unified government under a patronage-based party machine, the Party of Regions, and without a major political crisis. Following Yanukovych's victory in 2010, the pro-presidential Ukrainian constitution was restored, replacing the post-Orange constitution that vested greater power in the parliament. Under the pro-parliament constitution, Ukraine was more fully semi-presidential, with the president and prime minister controlling distinct patronage pyramids. This division was especially acute after the 2006 legislative election, which ushered in divided government under President Yushchenko and Prime Minister Yanukovych. The 2004 election, of course, takes place during the Orange Revolution and the attendant collapse of the patronage networks organized around President Kuchma, a collapse which had its roots in the earlier Kuchma-gate crisis. The 2012 election represents the height of patronage consolidation in Ukraine, as well, since the in 2014 the Euromaidan revolution and subsequent conflict results in the complete dissolution of the Party of Regions and a more fragmented political scene. A more detailed description of these dynamics is provided by Hale (2014). This period is captured with a dummy variable *Yanukovych*, which takes on a value of 1 for the 2012 legislative election.

The history sketched above also suggests that the two 2014 elections, which took place after Yanukovych fled the country and in the midst of the collapse of the Party of Regions as a political force, represent the nadir of patronage consolidation from the perspective of pro-eastern candidates. Since this crisis was sparked by the mass pro-Europe protests and anti-Yanukovych demonstrates at Kyiv's Independence Square (*Maidan Nezalezhnosti*), a dummy variable labelled *Post-maidan* takes on a value of 1 for these two elections.

4.3.3 Control variables

A set of control variables are included to help account for other possible explanations for manipulation, or for innocent voting patterns that could appear suspicious using the election forensic tools described above. One of these is an election-year variable: an indicator for *presidential elections*, which may be more intense drivers of electoral manipulation (Simpser, 2013). The remaining controls

are socioeconomic variables at the regional level, taken from Ukrainian government statistics. Since greater education levels and economic development are thought to help deter electoral manipulation, I include a measure of *higher education* as well as *per capita income*. The first of these measures the number of people with post-secondary education in a region, per capita.[5] The second is each region's gross regional product divided by its population. *Population size* is also included, since manipulation may be more difficult to implement in larger polities. The *urban* share of the population is included, because cities may be more vulnerable to forms of manipulation like vote-buying. As *government employees* may be particular susceptible to political pressure and the use of administrative resources, the number of government workers logged is used. Similarly, older Ukrainians are more likely to be dependent on the state for regular pension dispersal and other services, and more liable to administrative pressure. A measure of the number of citizens *over sixty* in each region, logged, is included. For overviews of the political and socioeconomic correlates of electoral manipulation, see Lehoucq (2003), Kitschelt and Wilkinson (2007), Stokes et al. (2013), and Schedler (2002).

4.4 Results

The results of this analysis are supportive of the consolidation-constraint model, and challenge the local-information model of electoral manipulation. Table 4.1 reports the results of the turnout coefficient models. The local-constraint model holds that regional party margin-east should have a negative effect on deflationary manipulation against pro-eastern parties. The results in Table 4.1 show that this is the case during the non-Yanukovych years (Models 2) and non-Maidan years (Model 3), while Figures 4.3 and 4.4 show the interaction effects. As predicted, the interaction of regional party margin-east and Yanukovych shows that by 2012, the Party of Regions and its allies were able to reduce the incidence of deflationary manipulation against their party nearly across the board. Only in the regions of very highest levels of pro-Western support were they unable to reduce deflationary manipulation, suggesting that agents in those areas still were willing to throw in their lots with pro-western patronage networks.

Figure 4.3 shows that the reverse is also true. During the period of post-Maidan elections, when pro-eastern patronage networks were suddenly fragmented by cascading crises, deflationary

[5]Unfortunately, this variable is only available from the 2001 Ukrainian census.

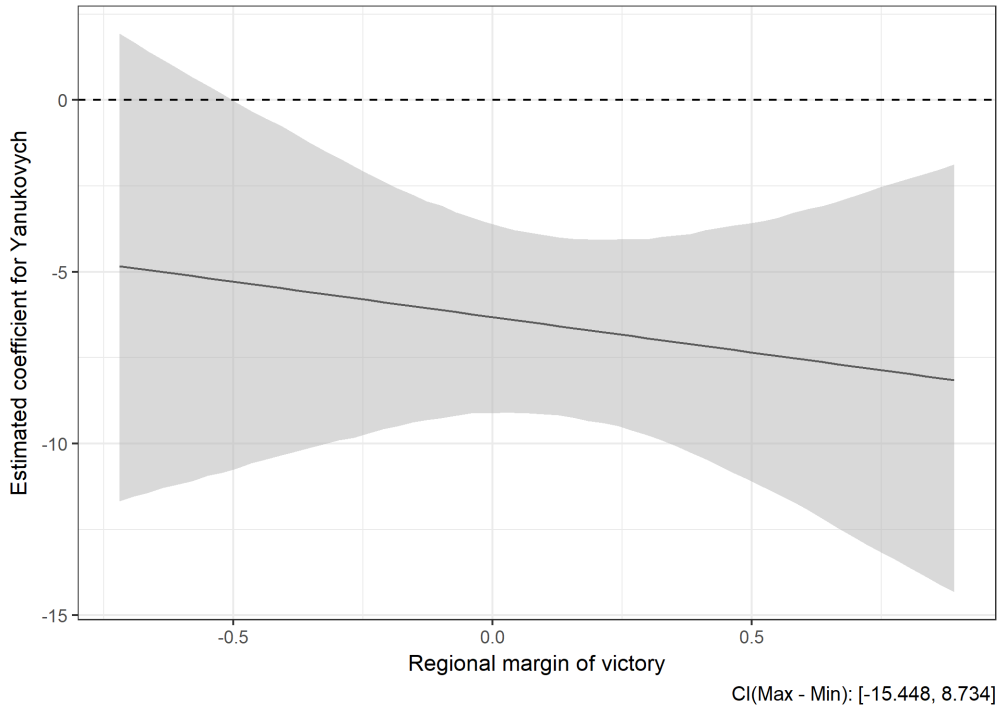

Figure 4.3: Marginal effect of Yanukovych on negative turnout coefficients for pro-eastern parties

manipulation against pro-eastern candidates becomes more likely in regions with pro-eastern regional legislatures, but not in pro-western regions. This result can be interpreted as a shift by agents away from pro-eastern patronage networks and toward pro-western ones as the relative appeal of the two options shifts. Where high risks for pro-western manipulation had previously made western patronage offers less appealing than their eastern counterparts, the sudden de-consolidation of eastern networks makes the competing offer more appealing. In pro-western regions, this effect is muted since anti-eastern deflationary manipulation was already in practice in these regions due to low local risks for such agents.

These results suggest that patronage networks and local risks both influence levels of election manipulation, but how attributable are they to principal-agent dynamics? The next set of models, using the number of possibly fraudulent precincts per region as the dependent variable, offers additional support for the theoretical framework. Since the dependent variable is based on apparently non-random clustering of precincts around specific vote-shares, it offers an indicator of agent behavior—the fulfillment of vote-share targets set by principals. Given that the overall indicator of manipulation provided by the turnout test almost universally detects deflationary rather than

	Dependent variable:		
	Deflationary manipulation (pro-east party)		
	(1)	(2)	(3)
Over sixty (log)	0.142	1.445	1.231
	(1.313)	(1.666)	(1.465)
Gov. employees (log)	−0.223	0.412	−0.334
	(0.944)	(1.154)	(1.026)
Urban	−2.348	−2.991	−0.045
	(2.314)	(2.907)	(2.514)
Population (log)	−0.705	−3.134	−1.727
	(1.526)	(1.988)	(1.699)
Per capita income (log)	0.449**	2.480***	0.394
	(0.224)	(0.484)	(0.316)
Ukrainian language share	−0.017	−2.821**	−2.275**
	(0.731)	(1.302)	(1.109)
Higher education	0.007	0.002	0.002
	(0.006)	(0.007)	(0.006)
Presidential election	0.297	−2.233***	0.162
	(0.337)	(0.603)	(0.368)
Orange Revolution	0.470	3.344***	0.448
	(0.591)	(0.863)	(0.647)
Regional party margin—east		−2.065**	−2.920***
		(0.971)	(0.908)
Post-maidan			0.848
			(0.614)
Yanukovych		−6.294***	
		(1.377)	
Reg. party margin—east : Yanukovych		−2.062	
		(3.793)	
Post-maidan : Reg. party margin—east			2.333*
			(1.367)
Constant	−0.610	−14.326	−4.142
	(7.982)	(10.952)	(9.611)
Observations	226	222	222
Log Likelihood	−147.29	−108.02	−135.70
Akaike Inf. Crit.	314.59	242.03	297.39
Note:			*p<0.1; **p<0.05; ***p<0.01

Table 4.1: Logit models of negative turnout test coefficient

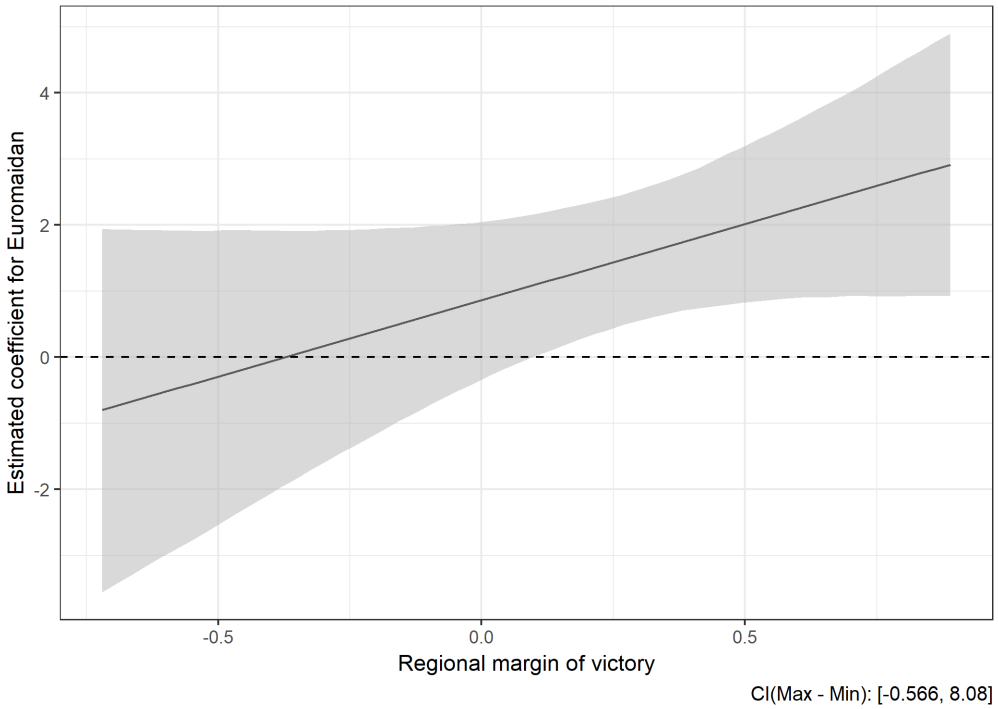

Figure 4.4: Marginal effect of post-Maidan on negative turnout coefficients for pro-eastern parties

inflationary manipulation, I assume that the fraudulent precincts detected by the vote-share test are generally indicators of deflationary manipulation as well.

As in the prior set of models, increasing local risks for pro-western agents results in reduced evidence of falsification against pro-eastern parties, both during the Yanukovych presidency (Model 5) and after the Maidan crisis (Model 6). The marginal effects of those shifts in patronage consolidation are presented in Figures 4.5 and 4.6. Figure 4.5 shows that the effect of Yanukovych is negative at all values of regional party margin, implying that the high consolidation of the pro-eastern patronage network during that period strongly reduced the incentive for pro-western agents to engage in deflationary manipulation. This effect is smallest in pro-eastern regions, where high local constraints on pro-western agents made such manipulation difficult to achieve even during the pre-Yanukovych period. The largest shifts occur in pro-western regions, where the apparent national dominance of the Party of Regions machine removes an incentive for pro-western behavior by agents. Finally, Figure 4.6 shows the effect of the breakdown of that nationwide pro-eastern patronage network: an increase in evidence of fraud affecting pro-eastern parties, which is especially sharp in pro-eastern regions. In pro-western regions the effect of this shift in patronage consolidation is minimal, since such regions

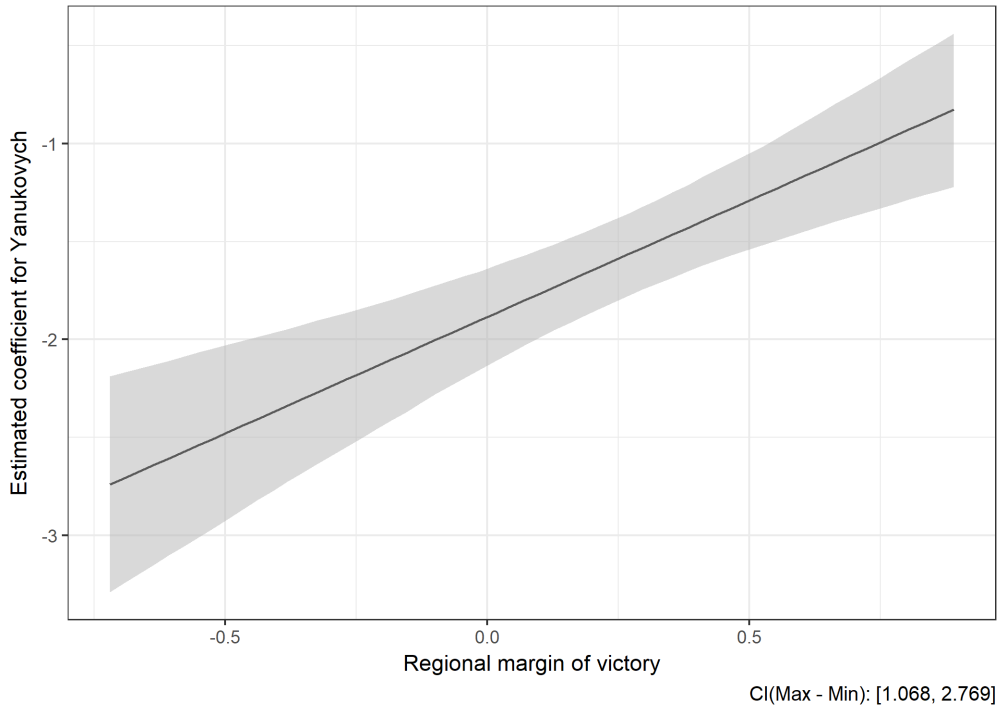

Figure 4.5: Marginal effect of Yanukovych on number of suspicious precincts

are already more closely aligned with pro-western parties, making anti-eastern manipulation easier in the pre-crisis period. The effect is largest in pro-eastern regions where the sudden absence of a consolidated pro-eastern network makes participation in pro-western efforts much more appealing. It is important to note here, however, that this analysis excludes election results from several of the most solidly pro-eastern regions—Donetsk, Luhansk, Crimea, and Sevastopol—where the Party of Regions network might have been expected to survive in the absence of war and annexation.

Lastly, Figures 4.7 and 4.8 show the predicted number of suspect precincts per region, by regional party margin—east and the variables that capture patronage consolidation, to illustrate substantive significance. To produce the predicted counts, continuous control variables are held constant at their mean values. The categorical controls presidential election and Orange Revolution were held constant at zero. Figure 4.7 shows the near complete absence of suspicious precincts in heavily pro-eastern regions, with little change when Yanukovych is president. By contrast, the predicted number of suspicious precincts in a pro-western region is between twenty and forty in the non-Yanukovych years, but falls to eastern levels during his presidency. Figure 4.8 shows that the Maidan crisis led to a large jump in the predicted number of suspicious precincts across the board; while the absolute

	Dependent variable:		
	Number of suspicious precincts (pro-east parties)		
	(4)	(5)	(6)
Over sixty (log)	−0.155	1.764***	1.304***
	(0.198)	(0.237)	(0.257)
Gov. employees (log)	0.309**	0.088	0.047
	(0.137)	(0.140)	(0.136)
Urban	−8.468***	−7.478***	−5.356***
	(0.445)	(0.442)	(0.450)
Population (log)	2.487***	0.563**	0.775**
	(0.251)	(0.280)	(0.310)
Per capita income (log)	0.301***	1.024***	−0.343***
	(0.034)	(0.042)	(0.055)
Ukrainian language share	1.867***	−0.424**	−0.289
	(0.136)	(0.176)	(0.185)
Higher education	0.010***	0.005***	0.007***
	(0.001)	(0.001)	(0.001)
Presidential	−0.449***	−0.937***	−0.299***
	(0.052)	(0.054)	(0.056)
Orange Revolution	0.916***	1.448***	0.321***
	(0.083)	(0.086)	(0.085)
Number of precincts	0.001***	0.001***	0.001***
	(0.00005)	(0.00005)	(0.00005)
Regional party margin—east		−2.057***	−2.647***
		(0.104)	(0.112)
Yanukovych		−1.887***	
		(0.125)	
Reg. party margin—east : Yanukovych		1.191***	
		(0.266)	
Post-maidan			2.346***
			(0.086)
Reg. party margin—east : Post-maidan			1.573***
			(0.120)
Constant	−18.250***	−31.401***	−17.358***
	(1.371)	(1.600)	(1.660)
Observations	226	222	222
Log Likelihood	−2,932.73	−2,482.33	−1,990.36
Akaike Inf. Crit.	5,887.46	4,992.67	4,008.72
Note:			*p<0.1; **p<0.05; ***p<0.01

Table 4.2: Poisson models of suspicious precincts

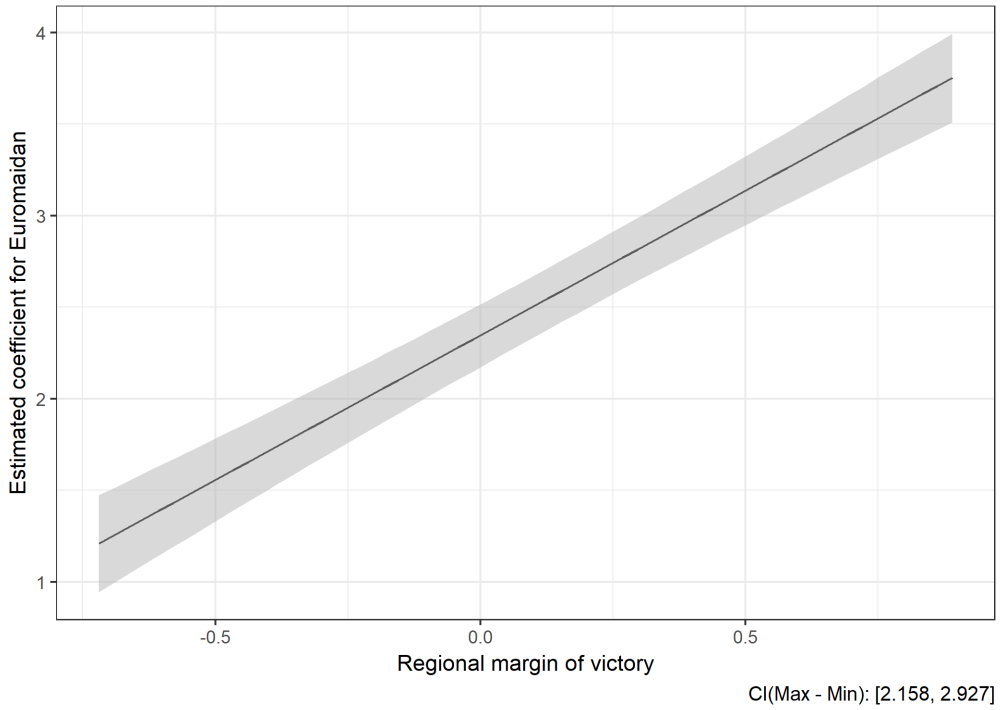

Figure 4.6: Marginal effect of Post-maidan on number of suspicious precincts

increase is largest in pro-western regions (from about 10 to about 50), the relative increase is larger in pro-eastern regions (from near zero to about 20).

A quick back-of-the-envelope example demonstrates the number of votes at stake is substantively significant, though not of overweening importance. In the 2007 Ukrainian legislative election, 450 seats in the Verkhovna Rada were allocated by proportional representation to parties winning more than three percent of the national vote-share. Collectively these parties won approximately twenty-one million votes, meaning that each seat in the Rada was worth about 46,000 votes. Given that each precinct includes about 1,000 registered voters on average, the presence of thirty suspicious precincts in a region might reflect deflationary manipulation that deprived a party of a few thousand votes. Magnified across Ukraine's regions, this kind of manipulation could conceivably adjust the balance of power in the Rada by a handful of seats. And of course, falsification of this kind represents only one technique available to parties.

4.5 Discussion and conclusion

Despite the difficulties of the case, Ukraine presents an important opportunity to test the implications of the model, especially in comparison with Russia. Russia shares many institutional

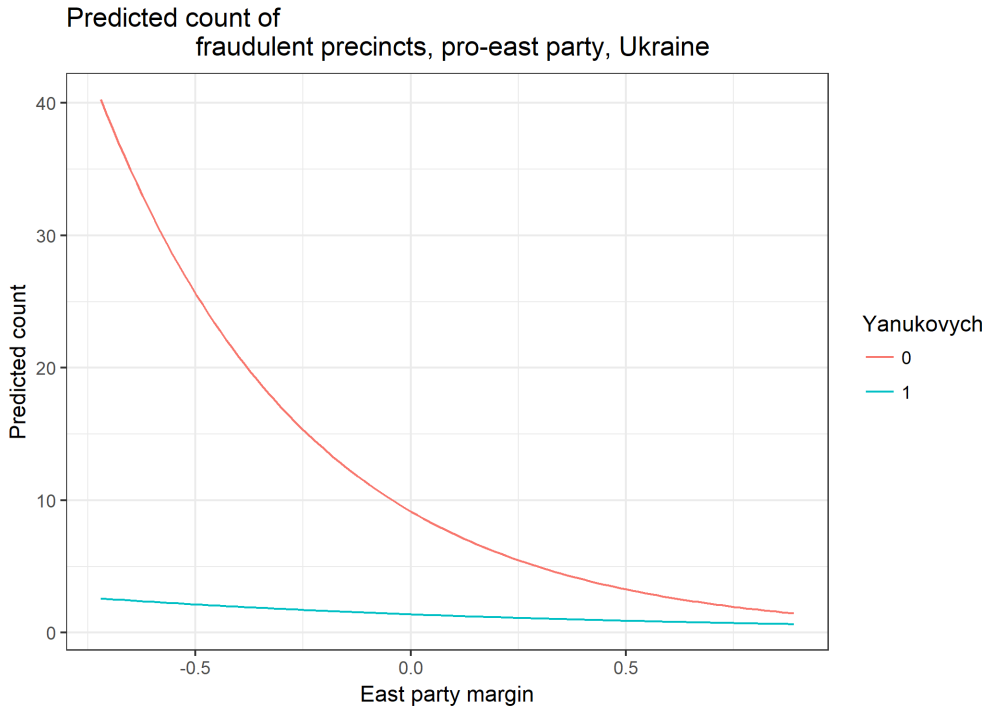

Figure 4.7: Predicted number of fraudulent precincts by Yanukovych

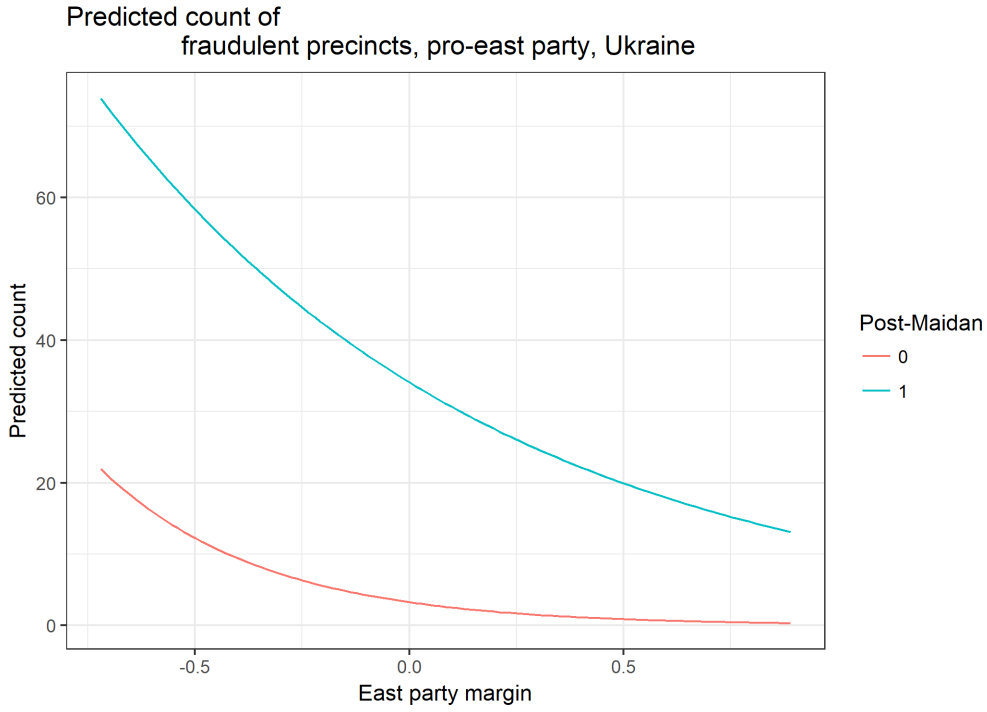

Figure 4.8: Predicted number of suspicious precincts, by post-Maidan

and historical features with Ukraine (particularly in eastern parts of the country) as a result of a shared imperial and Soviet experience. However, patterns of patronage consolidation and local constraints vary considerably between the two states. Patronage consolidation has consistently been much lower in Ukraine than in Russia during the period of analysis. A single party of power largely dominates in Russia, while the party system in Ukraine is much more fragmented and fluid. Oligarchic interests were largely tamed during the early years of the first Putin administration; rival oligarchic clans continue to clash behind the scenes in Ukraine. The period in which Ukraine's parliamentary-presidential constitution was in force helped establish a two-pyramid structure of patronage, in Hale's (2014) terminology, while Russia continues to operate within a more consolidated vertical of power.

As a result, we should expect to see different patterns of manipulation occur in the two cases. First, while the direct comparison is not statistically tested here, widespread falsification does appear to be considerably less common in Ukraine than in Russia. In the Russian case, suspicious results were captured by the digits test in 24 percent of region-years, whereas in Ukraine the same figure is approximately five percent—roughly what would be expected due to random chance alone.[6] Furthermore, while inflationary manipulation is common in Russia, to the benefit of the ruling party, suspicious turnout coefficients tend to be negative in Ukraine. This apparent emphasis on deflationary techniques may be due to the lower levels of patronage consolidation in the country. Since widespread voter mobilization and voter pressure campaigns can only be deployed by parties that control substantial patronage resources, cheaper deflationary tactics may easier to pull off for parties operating in a more fragmented patronage environment. This is a question that may be usefully addressed in further work.

However, the main benefit of the case in the present study is derived from the rapid fluctuation in patronage consolidation over time. Unlike the Mexican case (where patronage networks are deconsolidating during the period of study) or the Russian case (where they remain highly consolidated), Ukraine shifts from a fragmented patronage system after the Orange Revolution, to one with considerable consolidation around the Party of Regions under President Yanukovych, and

[6]Note that the digits test results differ from those of the vote-share test presented here; the mean number of suspicious precincts per region using the vote-share test is approximately 10 percent.

subsequently back to a fragmented system after the 2014 crisis. The results shown here indicate that the consolidation and constraint model is better suited to explaining electoral manipulation in this kind of setting than is the local-information model; that is, while local conditions certainly matter for explaining electoral manipulation, those conditions are also informed by the overall distribution of patronage resources backing one party or another.

In particular, the election-forensic analysis conducted here shows that overall deflationary manipulation targeting the Party of Regions became less severe during the Yanukovych presidency, but only in regions where constraints on pro-western agents were high. It also found a corresponding increase in deflationary manipulation in pro-eastern regions when the Party of Regions patronage network collapsed. Analysis of the models using the vote-share test results as a dependent variable, while only measuring one type of manipulation, provide further support for the principal-agent model based on patronage and risk. In those models, higher patronage consolidation around the Party of Regions led to a steep reduction in the number of suspicious precincts in pro-western regions; the subsequent breakdown resulted in increased fraud across the board (with especially steep increases in the east).

In sum, election-forensic analysis shows that overall electoral manipulation and specific signatures of fraud both respond to shifts in local risks and national patronage consolidation in ways predicted by the model. Where the Mexican case allowed for an investigation of the effects of shifting local competition while holding patronage consolidation constant, the Ukrainian case allows for analysis of shifting levels of patronage consolidation. Both cases demonstrate that the two factors can move independently, and interactive effect the level of election manipulation that parties can achieve.

CHAPTER 5

Punishment and protest—survey experimental evidence of the principal-agent problem, Russia 2016

Illegal forms of electoral manipulation—like vote-buying, voter pressure, and falsification of results—occur regularly in electoral authoritarian regimes and less consolidated democracies. As part of a vibrant literature on the function of democratic institutions in authoritarian contexts, a growing strand of research has worked to explain wide variation in the severity of electoral manipulation across countries, subnational regions, and time. While a variety of socioeconomic and institutional factors have been shown to affect the availability of manipulation as a tactic, the most important (and contentious) factor at work appears to be the competitiveness of the election and the surrounding political environment. Most recently, principal-agent models have been proposed to show how an increase in the competitiveness of the election can cause the low-level actors tasked with carrying out manipulation to refrain from doing so, especially in areas where the principal is less popular than the national average (Rundlett and Svolik, 2016).

However, it is difficult to distinguish the empirical results of a principal-agent model from those advanced in a well-established literature on election monitoring: namely, that political principals direct electoral manipulation away from competitive areas and areas that are monitored by civil society groups, international observers, and opposition parties. In the monitoring literature, this is understood as an effort by leaders to reduce the risk that manipulation efforts will be exposed, with the attendant loss of legitimacy and increased risk of protest. Both the principal-agent and monitoring models of electoral manipulation expect that manipulation will be less likely in more competitive regions, though they posit different causal mechanisms. It is difficult to test these mechanisms outright, given the illegal nature of agents' work and the extreme sensitivity of principals' motives. Moreover, if the principal-agent model is correct, agents will avoid engaging in manipulation in areas where they are likely to be punished for tampering with the election, and will not be punished in safer pro-regime strongholds even if they do break electoral laws. As a result, patterns

of agent exposure and punishment may not vary in a statistically detectable way across levels of competitiveness.

This puts the study of electoral manipulation in a challenging position. An observable empirical pattern of electoral manipulation can be explained by multiple theories, but the causal mechanisms underpinning each theory are very difficult to test. This paper takes a different approach, in an attempt to address this challenge. It uses survey-experimental questions, conducted in Russia in May 2016, to test attitudes toward the punishment of election-manipulating agents and toward protest as a response to local acts of electoral manipulation. In doing so, it aims to illuminate part of the incentive structure faced by both agents and principals. Specifically, it investigates how citizens favor punishment for election-manipulating agents versus protest in response to tainted elections. It finds that public opinion is generally supportive of criminal punishments for agents who tamper with elections, that this is especially true of supporters of the largest opposition party, and that supporters of that party appear to favor harsher punishments when elections are closer. However, it finds no statistically significant variation in support for protest against electoral manipulation across partisan groups, using a list experiment to reduce social desirability bias.

That partisanship conditions support for agent punishment implies that agents will be more vulnerable in areas with more opposition supporters. This creates an incentive for authoritarian regimes to allow agents who are publicly exposed carrying out election manipulation to face legal punishment or other penalties, to forestall the opposition's ability to call for such penalties as a campaign issue. For an agent caught tampering with an election in an area with active opposition groups, there is a risk that they will be abandoned by their principal in order to satisfy public demand for punishment and to preserve the appearance that manipulation is conducted by overzealous partisans rather than a systemic feature of the regime. By identifying a social foundation for agent risk in competitive regions—the desire of opposition supporters for legal punishment of electoral violations—the study shows partial support for the principal-agent models of electoral manipulation.

That partisanship does not condition support for electoral protest—and that support for such collective action is low even when using a list experiment—is further evidence that the principal-agent model best explains variation in manipulation. It also indicates a need for further investigation of the concept of legitimacy costs and the connections between manipulation and protest. If political leaders face only a small risk of mass protest when contemplating election manipulation, as these findings

suggest, researchers and good-government reformers will need to look to alternative explanations for variation in electoral integrity. These include greater attention to election-manipulating agents' incentives, as elaborated in this project, but also the social psychology of citizens' reactions to allegations of electoral manipulation.

5.1 Public opinion and electoral manipulation

It is difficult to distinguish empirically between the predictions of a principal-agent model and a principal-driven model of electoral manipulation; as discussed below, the two theories posit different causal routes to the same predictions. Instead of testing outcomes, then, it is possible to test those causal assumptions by studying public opinion on election manipulation, as one aspect of principals' and agents' incentive structure. While there is little previous work on this topic directly, related work has been done in the study of corruption, which can provide some theoretical guidance. In particular, individual partisanship and the closeness of elections appear to be important factors.

There are two main schools of thought about what factors can restrain ruling parties from tampering with elections. A classic view places political leaders' incentives at the theoretical forefront. Scholars in this tradition have argued that leaders are reluctant to engage in electoral manipulation when it is likely to be observed and criticized, in order to avoid costs to their legitimacy. This logic is well-established. Birch (2011) argues that leaders choose a mix of manipulation tactics in part based on the observability of manipulation and the associated legitimacy costs. Exposure of election manipulation may lead to international penalties (Hyde, 2011) or large-scale domestic protest (Tucker, 2007). In fact, the risk protest in response to election manipulation is often considered to be the primary factor that might deter a party from engaging in electoral malfeasance (Magaloni, 2010; Fearon, 2011).

It might be reasonable to suggest that, fearing the exposure of electoral manipulation, incumbents target their efforts in regions where manipulation is unlikely to be observed by opponents—that is, in the regions where the ruling party is strongest. Indeed, there is considerable evidence that electoral manipulation is less severe in places where it can be more effectively monitored (Sjoberg, 2013), and that manipulation suppressed by monitors 'spills over' into unmonitored districts (Ichino and Schündeln, 2012). Traditionally these patterns have been interpreted as the result of strategic decisions by leaders not to devote resources toward manipulation in territories where it is likely

to be discovered. Altogether, these models do not consider low-level agents' incentives to be of much theoretical importance; if the political leader gives the order, the machinery of manipulation is assumed to hum to life.

Principal-agent models of manipulation acknowledge that political leaders rely on thousands of front-line agents, whose task it is to actually distribute payments to voters, organize multiple-voting efforts, stuff ballot boxes, and more. These agents may not share the same incentives as their political bosses, leading to suboptimal outcomes for the principal. Rundlett and Svolik (2016) demonstrate formally that the competitiveness of elections affects agents' behavior. When the election is uncompetitive and the principal appears likely to win, large numbers of agents are willing to engage in manipulation on the leader's behalf, in order to share in the principal's patronage rewards. This leads to excessive levels of manipulation and high margins of victory. On the other hand, during closer elections, agents' discount the principal's post-election ability to deliver patronage, and become increasingly fearful of punishment if the opposing side wins. This causes some agents to refuse to engage in manipulation, especially in more competitive districts, leading to narrow margins of victory amid allegations of manipulation. Their model is driven by information; local conditions give agents insight into the overall state of the election, but on their own do not constrain agents.

Principal-agent models are theoretically compelling, in that they purport to explain two puzzling patterns of electoral manipulation. However, empirical support for these sorts of models remains underdeveloped. As a first test of their model, Rundlett and Svolik (2016) show that evidence of electoral fraud during the 2011 election in Russia is lower in regions with stronger opposition parties than in regions where the ruling party dominates. However, this pattern would also be consistent with existing, principal-focused explanations for variation in electoral manipulation. In particular, previous studies have argued that

As models in which electoral manipulation is constrained by agents' risk—not by cautious principals—principal-agent theories do have some empirical support, though the proposition remains understudied. It is well-known that agents can be punished if their patron loses office (Levitsky, 2003; Hale, 2006), and anecdotal evidence suggests that agents who are exposed after engaging in election manipulation may face local penalties even if their patron wins the overall election. Even a winning principal may face pressure from opposition groups to hand agents over to the courts, for example, or to strip them of party rank or public office. In competitive areas, where opposition groups are more

active, principals may give in to this pressure. For example, in Russia (a nationally uncompetitive case), the chair of a local election commission was fined 200,000 rubles in 2009 (approximately half the average yearly income), after being convicted of falsifying ballots on behalf of the ruling party.[1] Similarly, in 2016, another local precinct commissioner was fined 210,000 rubles for spoiling ballots cast for an opposition party.[2]

The challenge facing researchers of election manipulation, however, is that tools like election-forensic analysis cannot distinguish between the principal-only and principal-agent theories, since they rely on different logics to predict similar outcomes. Furthermore, a direct test of the principal-agent model by studying punishment of agents is infeasible. If the data-generating process described by the principal-agent model is correct, the punishment of election-manipulating agents should be rare across the spectrum of competitiveness. In non-competitive districts, agents will not face punishment due to the support of the local political machine, while in competitive districts agents will strategically reduce electoral manipulation efforts in order to avoid punishment. A statistically null result is likely to appear as a result, even if the underlying process described by the theory is true.

In the absence of such a direct test, the next best approach is to test the propositions that undergird the two theories. How serious is the risk of post-election protest for leaders? If support for such actions is low, it would call into question the causal story in the principal-led models of manipulation. And how strongly does the public support severe punishments for individuals caught tampering with elections? If support for criminal punishment is high, risks to exposed agents are likely to be intensified by political pressure. Public opinion acts as a latent resource that political parties, media outlets, and other elite actors can attempt to shape and utilize (Aldrich, 1995; Hooghe and Marks, 2005; Chong and Druckman, 2007), even in non-democratic regimes (Levitsky and Way, 2010; Schatz, 2009). If public opinion strongly disapproves of individuals who tamper with elections,

[1] This information was taken from the Honest Elections Public Council, a Kremlin-approved non-governmental agency that maintained a list of arrests, administrative charges, and criminal proceedings against individuals who have allegedly helped manipulate an election. The organization and website are now defunct, but an archive is available at `https://web.archive.org/web/20170809084414/http://www.chest-vibor.ru/chronicles/`.

[2] A summary of this event is available (in Russian) from the election-monitoring NGO Golos at `http://www.golosinfo.org/ru/articles/100921`.

opposition parties may be more inclined to make manipulation incidents into political issues, in order to discredit the incumbent and bolster their own chances. Such efforts help opposition parties play a two-level game, by raising their profile in the election at hand while also helping them press for liberalizing reforms to the electoral process (Schedler, 2002). On the other hand, authoritarian governments may attempt to shore up their support by allowing limited exposure of misdeeds by low-level officials (Lorentzen, 2013), while aggressively censoring information that could lead to collective action (King et al., 2013).

Though research on public opinion and electoral manipulation is sparse, there is a well-developed literature on the analogous topic of political corruption, which can provide a useful platform for the study of attitudes toward election-manipulating actors. Both are illegal, often covert activities, and both corruption (Anderson and Tverdova, 2003; Chong et al., 2015; Davis et al., 2004; Gingerich, 2009; Seligson, 2002; Winters and Weitz-Shapiro, 2013) and electoral manipulation (Birch, 2010; Carreras and İrepoğlu, 2013) have been found to have negative effects on political participation, trust, and evaluations of the government.

Similarly, research on how people evaluate the fairness of elections (that is, how they decide whether it was fair or rigged) may offer insight into how people might react to manipulation. Such evaluations have been shown to be conditional on respondents' partisanship (Beaulieu, 2014; Cantú and García-Ponce, 2015), whether the respondent expected her party to win the election (Hollander, 2014) and whether it did so (Sances and Stewart III, 2015). In addition, the closeness of elections has been shown to affect judgments about the fairness of elections (Wolak, 2014). If the effect of competitiveness on voters' attitudes is a rational one, as Singh et al. (2012) and Blais et al. (2015) argue, voters on the losing side may take a more negative view of election-manipulating agents in close elections (see also Thompson and Kuntz (2004), and Kuntz and Thompson (2009)). If, instead, voters are more responsive to normative concerns about the quality of democracy (Cho and Kim, 2016), the effect of competitiveness on attitudes toward manipulation should be minimal.

5.2 Theory: Competitiveness, electoral manipulation, and public opinion

Political candidates and party leaders can benefit in multiple ways from engaging in electoral manipulation. They improve their chances of winning, build and maintain networks of clients (Harvey 2016), and send signals to other political actors (Simpser, 2013). However, candidates and leaders cannot deliver these benefits singlehandedly. Instead, they rely on large networks of agents whose

actions influence the results. These networks are usually organized as pyramids, with small numbers of high-level actors overseeing a larger number of actors at lower levels (Auyero, 2007; Knoke, 1990; Levitsky, 2003). A leader at the national level can be linked to a large number of local agents through intermediaries like governors and party officials, as a result.

This reliance on low-level actors to carry out electoral manipulation efforts opens up the possibility that principals' and agents' incentives may diverge, leading to less-than-optimal outcomes for political leaders. As Rundlett and Svolik (2016) depict in their formal model, agents may produce far more manipulation than is necessary to win the election when the incumbent is popular (and agents feel secure in illegally affecting the outcome). However, when the incumbent's position looks less secure, agents who operate in more competitive districts will withhold their efforts, hoping to avoid punishment if the opposition takes power. Their model assumes that agents are well informed about local political conditions, an assumption that is well supported in by previous work (Stokes et al., 2013; Zarazaga, 2014).

As discussed above, few researchers have studied public attitudes toward the act of electoral manipulation. If public opinion favors punishment for those who tamper with elections, two mechanisms are possible, with implications for understanding the principal-agent dynamic. First, citizens might generally favor stronger punishment for electoral manipulation in close elections compared to non-competitive elections. This would be consistent with the idea that 'stolen' elections are more objectionable to citizens than elections in which the outcome was not in doubt (Tucker, 2007) and the finding that respondents are more forgiving of those who sell their vote to the party they already support (Gonzalez Ocantos et al., 2014). Such a result would also help confirm the information-based mechanism advanced by Rundlett and Svolik (2016). If respondents' willingness to punish election manipulators is conditional purely on the closeness of the election, it suggests that agents will primarily keep their eye on the overall state of the race. Close national elections are risky for agents, in this view, and local conditions serve primarily as an indicator of the national environment.

> Hypothesis 1: Respondents will favor stronger punishments for election manipulating agents in more competitive elections than in uncompetitive elections.

However, it is also possible that local political conditions do more than inform agents about

national trends, and instead create risks that actively constrain agents at the local level. The presence of a locally assertive opposition party, in particular, may increase the risk to agents of participating in a manipulation effort. For example, opposition-party representation on election commissions makes it easier to expose acts of tampering (Kovalov, 2014; Bader, 2012; Calingaert, 2006), and opposition party figures are more likely to pursue court cases against election irregularities in regions where the governing party does not dominate the local courts (Popova, 2006). The local mix of partisan affiliation may also affect the risk to election-manipulating agents, if attitudes toward election manipulators are conditional on respondents' partisanship.

From the literature on public attitudes toward corruption, it is clear that individuals evaluate political corruption differently based on their partisan affiliation (Anderson and Tverdova, 2003; Eggers and Spirling, 2014), a result that is mirrored by research on attitudes toward the overall fairness of elections (Beaulieu, 2014; Cantú and García-Ponce, 2015; Hollander, 2014; Sances and Stewart III, 2015). In both cases, respondents are consistently more likely to overlook (or even favor) acts of corruption or electoral manipulation if they are conducted by co-partisans. These earlier, related results suggest that partisan affiliation is likely to condition attitudes toward those who engage in electoral manipulation. Such a result would suggest that hostility towards election-rigging is not widespread across citizens, but confined to particular parties. It would also be in line with the view that opposition parties in electoral authoritarian regimes draw on ideologically committed supporters (Greene, 2007). If the local-constraints version of the principal-agent model is correct, willingness to punish agents should be grounded in partisanship.

> Hypothesis 2: Opposition-party supporters will support stronger punishments for election-manipulation agents than supporters of the dominant party.

Finally, it may be the case that the competitiveness of the election and respondents' partisan affiliation interact to affect attitudes toward agents, as has been shown to be the case for related issues. For example, supporters of the losing party in an election are more dissatisfied with democracy following close elections than uncompetitive elections, while winners show the opposite pattern (Howell and Justwan, 2013). This would also be in line with the literature on 'stolen' elections (Tucker, 2007). Here it is important to distinguish between supporters of the largest opposition party, which has a chance to meaningfully challenge the ruling party, and smaller opposition groups

which do not (Wolak, 2014). Support for this hypothesis would indicate that agents face elevated risks only in areas where a party with a high national profile is active and popular.

> Hypothesis 3: The effect of competitiveness on attitudes toward election-manipulating agents will be conditional on partisanship, with supporters of large opposition parties favoring stronger punishments in close elections.

The foregoing three hypotheses are intended to test different versions of the principal-agent model of manipulation. The competing theory holds that principals withdraw their agents from competitive territories in order to forestall post-election protest. If the principal-oriented theory, focused on legitimacy costs, is correct, it is likely that supporters of opposition parties will be more likely to endorse protests as a response to electoral manipulation than supporters of the ruling party; principals can get away with manipulation in areas where their supporters predominate, but are forced to avoid manipulation in pro-opposition territories.

> Hypothesis 4: Opposition-party supporters will be more likely to support electoral protest than ruling-party supporters.

5.3 Data and methods

In order to test these hypotheses, two survey experimental questions were incorporated into a monthly omnibus conducted by the Levada Center—an established, independent Russian survey organization—in May 2016.[3] The nationally representative sample is made up of individuals randomly selected based on their physical addresses; these individuals were interviewed face-to-face by Levada Center employees. As interviewers progressed through their routes, they alternated treatment and control versions of the questionnaire, randomly assigning respondents to treatment or control groups. All told, the survey reached 1,602 respondents. The Levada Center provided a standard battery of socioeconomic data on each respondent, including: age, gender, work status, income, education level, and self-reported vote history.

In particular, respondents are asked to provide their vote choice in the 2011 parliamentary

[3]The survey took place prior to the Levada Center's designation as a "foreign agent" by the Russian Ministry of Justice in September 2016.

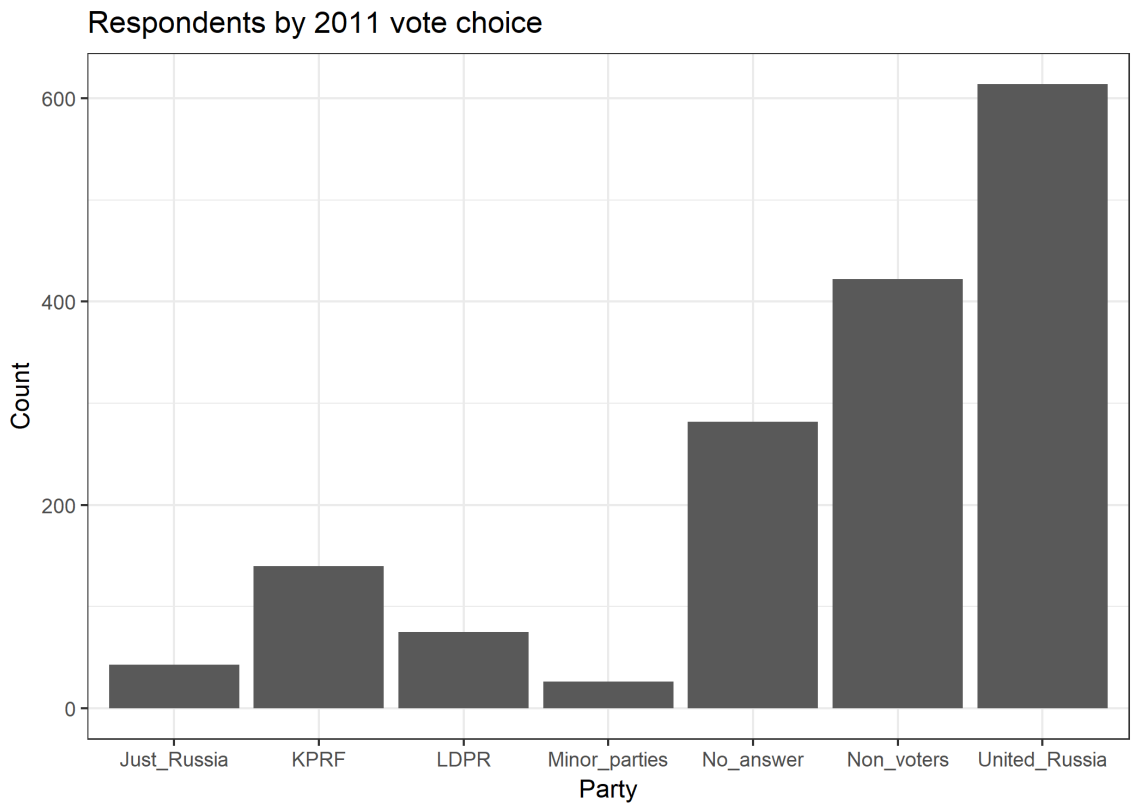

Figure 5.1: Partisan vote-choice, 2011 election

election (the most recent at the time of the survey). As Figure 5.1 shows, a plurality of respondents reported voting for the ruling party, while the next two largest categories are non-voters and those who declined to answer. The Communist Party of the Russian Federation (KPRF) is Russia's primary parliamentary opposition party, though it has been considerably tamed by the Kremlin since the more freewheeling 1990s. It is the next largest category of voters, followed by smaller groups who supported the Liberal Democratic Party of Russia (a nationalist party) or the social democratic party A Just Russia (see Golosov 2012 for an overview of Russia's party system). Supporters of various minor parties make up the smallest group.

The Russian case is a useful one for testing the implications of the principal-agent model. While the country has become increasingly authoritarian under the government of Vladimir Putin, it holds regular multiparty elections at multiple levels. Opposition parties, along with civil society groups, actively monitor elections (Buzin et al., 2016). When acts of electoral manipulation are exposed, opposition parties regularly press for investigations and criminal charges. From time to time, they are even successful: in recent years, election commissioners found guilty of tampering on behalf

of the ruling party have received fairly stiff sentences under the criminal code (Golos, 2015). The existence of an active, if fairly subdued opposition, suggests that if principal-agent dynamics are at work in Russia, they will be fairly hard to detect, making it a tough case for testing the theory.

Other factors that are known to affect attitudes toward acts of corruption, discussed above, can either be held constant by a one-country case selection strategy, or distributed randomly between treatment and control groups in a survey experiment. The first category of causes includes the state of the economy, while the second includes the availability of information, clarity of responsibility for corruption, the level at which corruption takes place, and the salience of the issue for individuals and for national politics. Likewise, a single-country survey experimental design holds constant (or distributes randomly) socioeconomic and political factors that can influence how widespread and severe electoral manipulation is, which could in turn affect respondents' attitudes. These include socioeconomic inequality (Lehoucq and Molina, 2002; Ziblatt, 2009), poverty (Stokes, 2005; Nichter, 2008), education levels (Kitschelt and Wilkinson, 2007), population size (Larreguy et al., 2016), ethnicity (Goodnow et al., 2014) and urbanization (Birch, 2011). In addition, the type of electoral institutions (Birch, 2007) and the level of economic corruption (Birch, 2011) are understood to affect the appeal of manipulation as a strategy for incumbents.

The first experimental question is a vignette experiment, which was designed to elicit attitudes toward those who engage in election manipulation. Vignette experiments allow the researcher to evaluate whether respondents' view of a subject changes when the nature of the subject, or the context of the question, is changed. This technique has been used to study a variety of sensitive subjects (e.g. Gilens (1996), Corrigan and Watson (2007), Wirth and Bodenhausen (2009), and Felson and Feld (2009)). Since the experimental format does not require a single individual to simultaneously compare two sensitive subjects, social desirability bias and design effects can be reduced. Instead, the researcher is able to extract variation in attitudes from the treatment and control groups overall. This format is well-suited to identifying average attitudes toward election-manipulating agents, a sensitive topic, in competitive and non-competitive elections.

The text of the survey questions are presented below, with the treatment condition listed in bold and the control version following in brackets. Russian-language versions are provided in the appendix.

> Q1. Imagine a **close** [uncompetitive] election is taking place, in which **no one** [everyone] knows which party will win. Now imagine that a local election official is caught tampering with the election results in his precinct. In your opinion, how severely should this electoral crime should be punished, compared to an ordinary crime like stealing a car? Should the election official be punished
>
> - Much less severely than someone who steals a car
> - Somewhat less severely
> - About the same
> - Somewhat more severely, or
> - Much more severely than someone who steals a car

The question calls attention to the competitiveness of the election twice, to reduce the chance that the respondent does not notice the treatment. It pegs one form of illegal activity—election manipulation—to another form of illegal activity, in order to reduce social desirability bias further (which may be exacerbated by the in-person survey method). The respondent is not being asked to agree or disagree with tampering with elections, but rather to compare punishments for two clearly illegal activities. There should be little shame in advocating harsher penalties for car thieves than for ballot-stuffers, or vice versa. Vehicle theft was chosen as the point of comparison in order to avoid floor and ceiling effects, in the expectation that comparison to a substantial property crime would split respondents more evenly than comparison to a minor property crime (e.g. shoplifting) or to violent crimes. To my knowledge, this question is the first attempt in the literature to gauge public opinion of those who carry out election manipulation, rather than attitudes toward recipients like vote-sellers or public opinion on the overall level of manipulation.

The second question is aimed at attitudes toward protest. While all protest is in a sense political, the four control items in the question are intended to be purely economic. These sorts of protest are relatively common in Russia, used as a means of drawing the Kremlin's attention to particular economic problems. Such protests may challenge local authorities, but do not undercut the authority of the president or the national ruling party. The treatment condition includes a fifth, sensitive item concerning illegal electoral manipulation by local officials. The text is as follows.

> Q2. Sometimes public protests occur in Russia. I am going to read you a list of [four] **five** events, which could lead people to participate in a protest. In your opinion, how many of these events would justify protest? You do not need to tell me which items in particular would justify protest, just the overall number.

- A pothole on a side road has not been repaired for several weeks
- Unpaid wages by a local employer for several months
- A one-percent increase in income taxes
- A major reduction in benefits for retirees
- Local officials trying to illegally influence the outcome of elections

The individual responses to each question constitute the dependent variables of this study. Since the response variable for Q1 is ordered, the results are analyzed using ordered logistic regression models. Since Q2 is a list experiment, it is analyzed using the methods for dealing with sensitive-item surveys proposed by Imai (2011) and Blair and Imai (2012). Mutz (2011) advocates against control variables in vignette experiments, since the randomization procedure should already 'control' for correlation between the dependent variable and non-treatment variables (and statistical hypothesis testing already accounts for the possibility of a spurious correlation appearing by chance). Introducing theoretically unnecessary covariates has the negative effect of introducing noise into the model and inflating standard errors. However, when there are theoretically grounded reasons to believe that the treatment effect will be mediated by certain characteristics of the population, covariates may be included as interaction terms with the treatment. Since the effect of partisan alignment is of theoretical interest, I include separate models in which this covariate interacts with the treatment. Partisan affiliation indicates which party, if any, the respondent voted for the in the 2011 legislative election.

5.4 Results

5.4.1 Legal punishment for election-manipulating agents

Figure 5.2, below, presents a histogram of the response variable divided intro treatment and control groups. This raw data illustrates two results. First, respondents are generally supportive of criminal punishment for those who tamper with elections. While it is clear that respondents gravitated toward the middle option (indicating that the punishment for such electoral crimes should be roughly equivalent to that for stealing a car), it is also clear that those who believe manipulation should be punished 'much more severely' outnumber those who favored much less severe punishment by approximately three to one . In Russia, theft can be punished with up to two years in prison (Criminal Code of the Russian Federation, Section VIII, Article 158). While this is not a statistical test, the survey shows that Russian respondents favor criminal punishment for election-manipulating

Severity	Much less	Less	Same	More	Much more
N (%)	102 (6)	225 (14)	613 (38)	309 (19)	346 (22)

Table 5.1: Distribution of support for punishment of election-manipulation agents

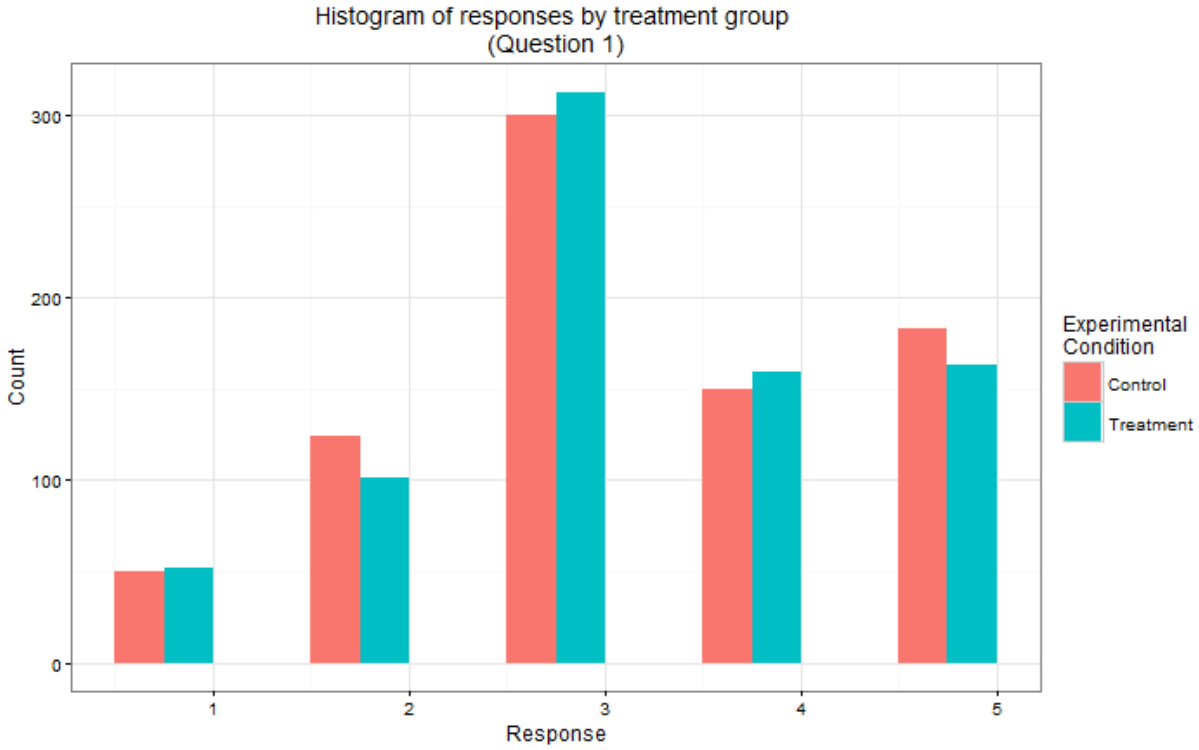

Figure 5.2: Histogram of support for punishment of election-manipulating agents by experimental groups

agents, a fact which argues in favor of a principal-agent understanding of manipulation patterns.

However, the histogram also indicates that there is no significant difference between the treatment and control groups as a whole. Indeed, the mean response in the control group was 3.36 (indicating a preference for punishments somewhat more severe than for car theft), while in the treatment group the mean response was 3.35. Model 1 in Table 5.2 shows that there is indeed no statistically significant difference between the treatment and control groups' response to the question. As a result, Hypothesis 1 is not supported: competitiveness of the election alone does not generate broadly higher levels of demand for punishment of electoral manipulation.

However, this apparent homogeneity obscures important partisan differences. Model 2 excludes the treatment variable and focuses on partisanship alone. The model includes dummy variables for supporters of the Communist Party of the Russian Federation, the Liberal Democratic Party, minor

parties, those who declined to answer, non-voters, and United Russia. The ruling party, United Russia, serves as the baseline category. Individuals who voted for the KPRF are significantly more likely to favor harsher punishments for election manipulators, compared to supporters of the ruling party. This supports Hypothesis 2: supporters of Russia's largest opposition party are likely to support harsher punishments for election-manipulators than are the supporters of other parties. Furthermore, KPRF voters are more likely to hold this position regardless of the competitiveness of the election, suggesting that they are more likely to view electoral manipulation as a problem in and of itself.

Model 3 includes the interaction of the treatment variable, electoral competitiveness, with partisan affiliation. The results of this model suggest that partisanship matters for how individuals evaluate election-manipulating agents in competitive and non-competitive elections, especially among the supporters of smaller parties. However, it only suggests tentative support for Hypothesis 3, which applies to the KPRF. No statistically significant effect of the interaction of KPRF support and competitiveness is found at the traditional $p < .05$ level. However, Figure 3 shows that the marginal effect of KPRF support is positive and just short of this threshold for competitive elections.

Additional analysis of the data also suggests an interaction effect. Figure 5.4 depicts the density of simulated average treatment effects on the treated for United Russia supporters and KPRF supporters. The results show clear differences in the estimated effect of electoral competition on the two parties' supporters' attitudes toward criminal punishment for election manipulators. Treatment has essentially no effect on United Russia supporters; the peak of the distribution is tightly centered around zero. By contrast, a competitive election appears to make criminal punishment for election-manipulating agents substantially more appealing to KPRF supporters. These results must be interpreted with caution, given the size of the two samples: 68 KPRF supporters were exposed to the treatment condition and 72 to the control, while the figures for United Russia supporters are 299 treated and 315 in control. Nevertheless, these results offer tentative support for Hypotheses 3.

Figures 5.5 through 5.7 show the predicted probability of respondents choosing each level of punishment, comparing treatment and control conditions. The figures show clear patterns. For the LDPR and A Just Russia (as well as minor parties), a negative interaction can be seen in which respondents who considered a competitive election were more likely to support punishments that were as strict as for stealing a car or less. The effect is quite sizable. For example, supporters of

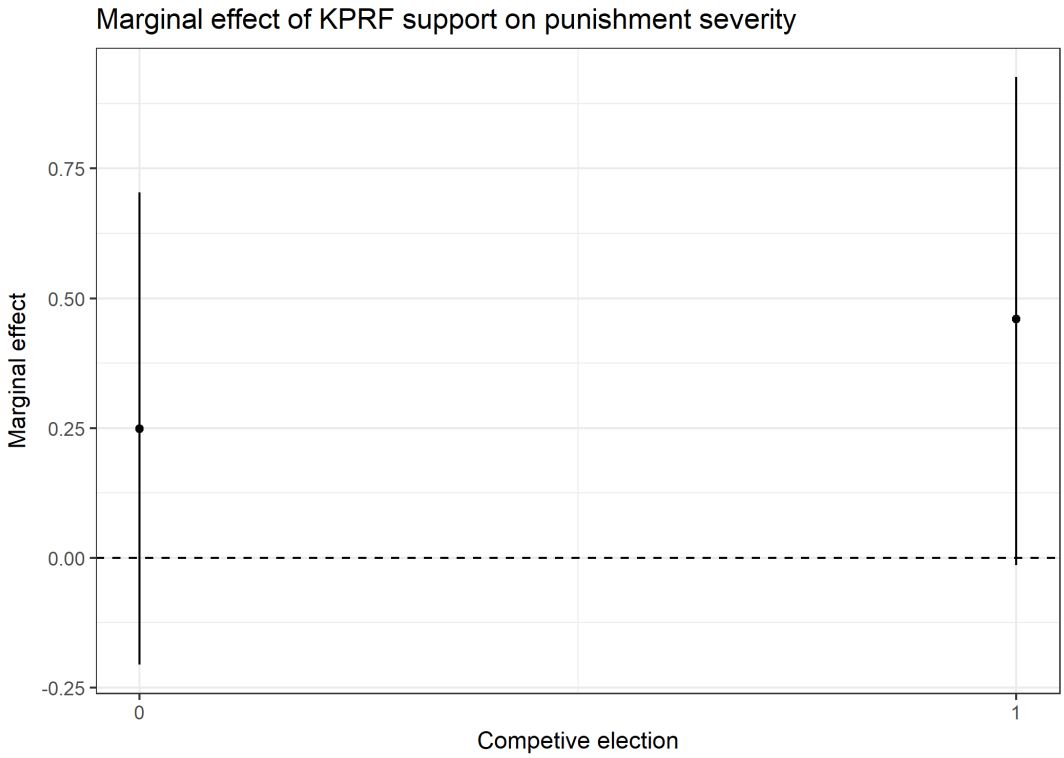

Figure 5.3: Marginal effect of KPRF support on attitudes toward punishment of election-manipulating agents, by treatment condition

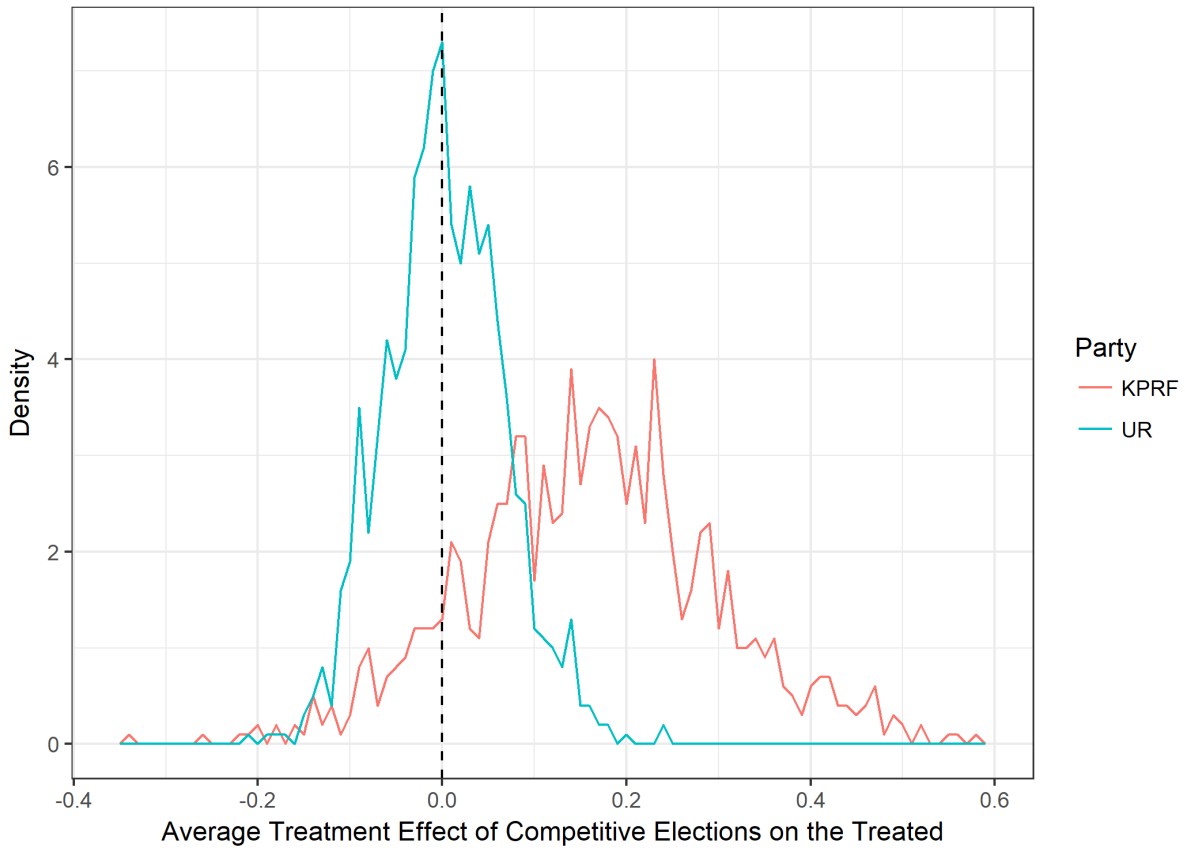

Figure 5.4: Average treatment effects on the treated for United Russia and the Communist Party of the Russian Federation

	Dependent variable:		
	Q1		
	(1)	(2)	(3)
Treatment	−0.0002		0.023
	(0.090)		(0.146)
A Just Russia		−0.022	0.569
		(0.313)	(0.405)
KPRF		0.348**	0.251
		(0.168)	(0.233)
LDPR		0.142	0.841**
		(0.235)	(0.358)
Minor parties		0.141	1.273**
		(0.367)	(0.563)
No answer		0.033	−0.195
		(0.129)	(0.184)
Non-voters		0.122	0.142
		(0.114)	(0.160)
Treatment : A Just Russia			−1.455**
			(0.628)
Treatment : KPRF			0.211
			(0.336)
Treatment : LDPR			−1.204**
			(0.473)
Treatment : Minor parties			−1.940***
			(0.737)
Treatment : No answer			0.439*
			(0.258)
Treatment : Non-voters			−0.038
			(0.229)
Observations	1,595	1,595	1,595
Note:			*p<0.1; **p<0.05; ***p<0.01

Table 5.2: Ordered logit models of Question 1 (punishment for election-manipulating agents)

A Just Russia have a thirty percent probability of supporting much more severe punishment in non-competitive elections, but only a ten percent probability in competitive elections.

As shown in Figure 5.6, non-voters and United Russia voters behave in the same way: their willingness to punish election-manipulating agents does not change with the competitiveness of the election. This suggests that supporters of the ruling party, like non-voters, are tenuously connected to the electoral process. They are generally supportive of penalties for those who manipulate elections, but the degree of competitiveness does not influence their thinking. These respondents make up approximately sixty percent of the nationally representative sample. The bulk of citizens, then—those who support the ruling party or are disengaged from national politics—do not appear to evaluate electoral manipulation in partisan terms. Nor, as Model 2 shows, do they appear to be more willing to punish electoral manipulation in close elections, when manipulation may make a difference in the outcome.

Finally, supporters of the KPRF and those who declined to answer show a positive interactive effect in Figure 5.7; they generally support stiffer penalties for tampering in more competitive elections. That these two groups behave similarly is suggestive that both groups are generally opposition supporters. These are the only groups who appear to be motivated by pragmatic concerns, being more willing to punish election manipulation during more competitive races.

5.4.2 Support for electoral protest

Table 5.3 shows the analysis of Q2, where respondents' support for protest is the dependent variable. Model 4 shows the results for the non-sensitive control items, while Model 5 models the final, sensitive item: protest in response to electoral manipulation. As the results show, supporters of the LDPR and those who withheld their party affiliation are more likely to protest on economic issues than supporters of the ruling party (the base category). However, no partisan group is more likely to support protests based on local electoral malfeasance. Figure 5.8 illustrates this pattern, presenting the estimated proportion of each party group that responded to the sensitive item. The proportion of respondents who would support protests against electoral manipulation ranges from approximately 40 to 50 percent across the different electoral groups, with no statistically significant variation. Partisan affiliation, by itself, does not appear to increase support for electoral protest.

This is a substantively important finding. If partisan affiliation does not condition support for electoral protest, it indicates that areas with more United Russia voters (for example) will not

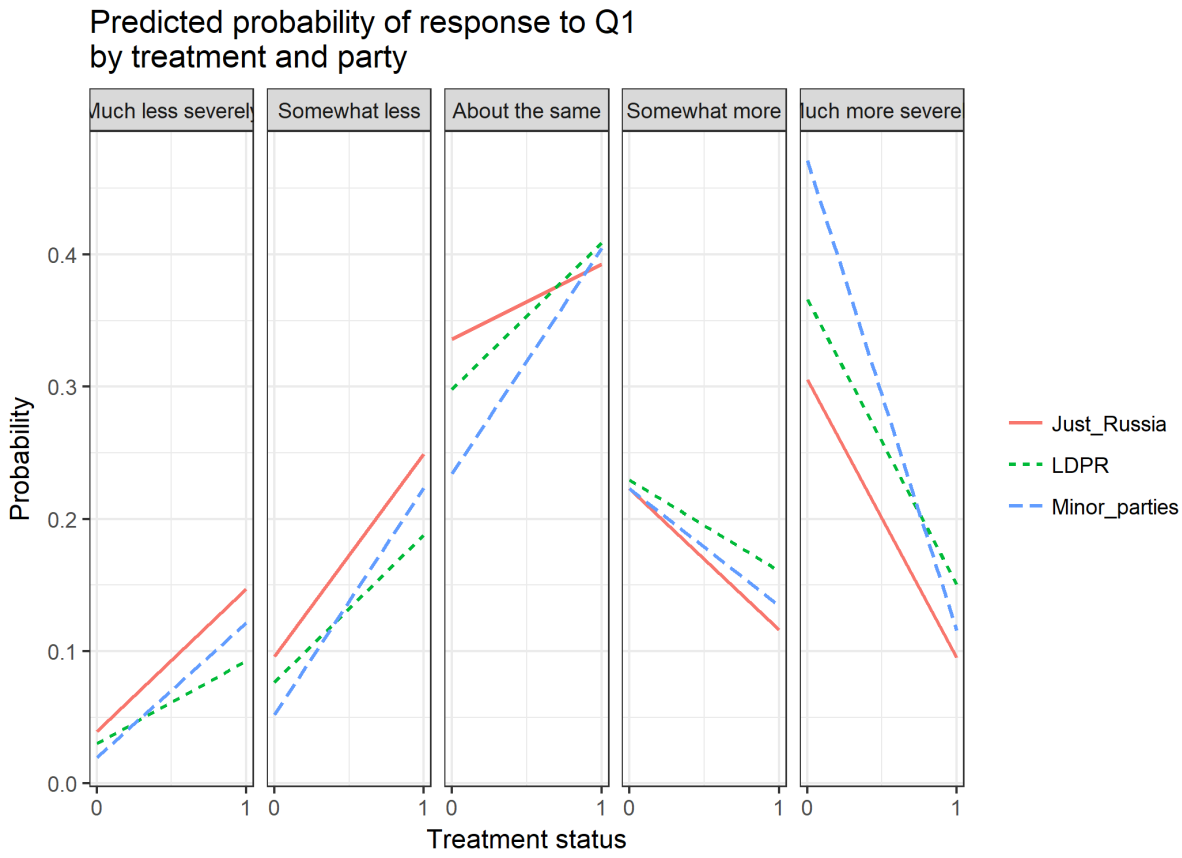

Figure 5.5: Treatment effects for smaller parties

	(4)		(5)	
	Coef. (control)	SE (Control)	Coef. (Treatment)	SE (Treatment)
(Intercept)	2.120	0.065	0.400	0.101
Just Russia	-0.454	0.329	0.293	0.432
KPRF	0.144	0.165	0.099	0.252
LDPR	0.438**	0.188	-0.021	0.318
Minor parties	-0.254	0.291	0.460	0.541
No answer	0.241**	0.114	-0.411	0.182
Non voters	-0.001	0.108	-0.061	0.164
				(** $p < 0.05$)

Table 5.3: Item count technique regression (maximum likelihood) model of support for protest

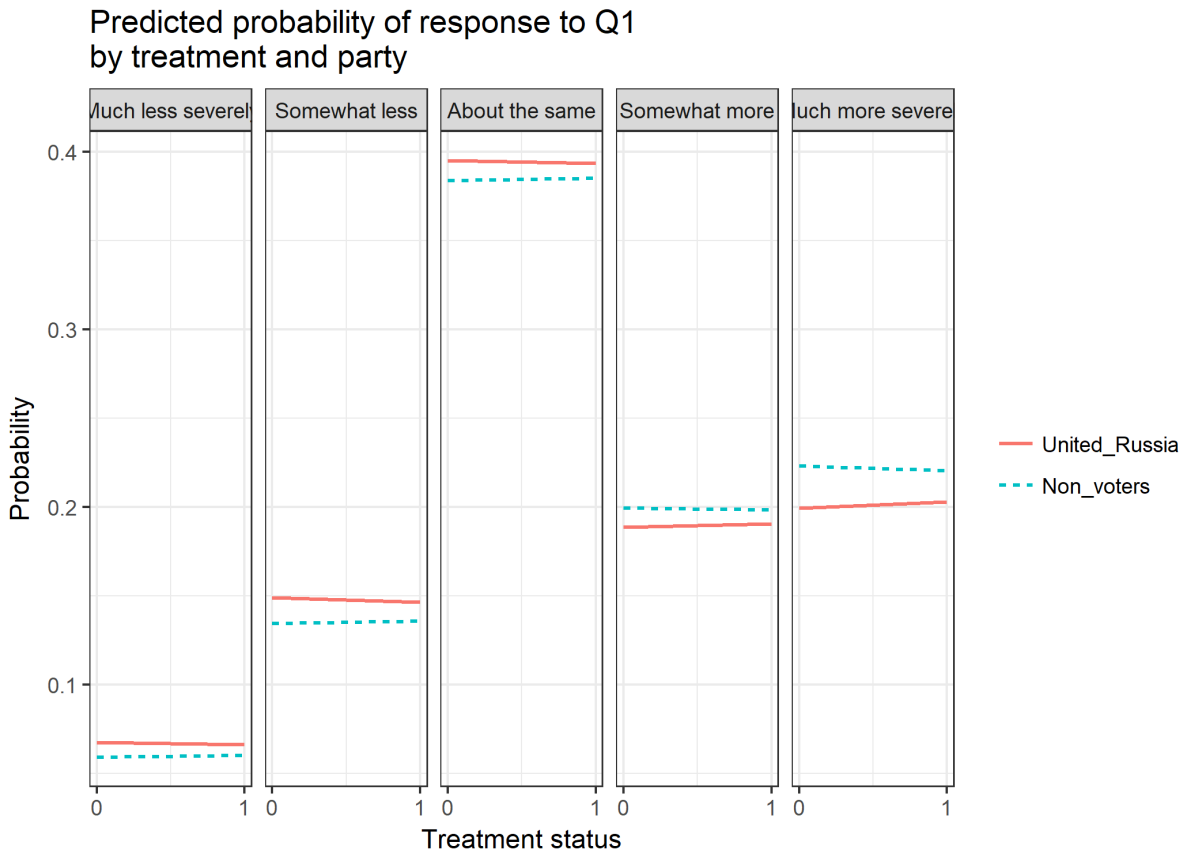

Figure 5.6: Treatment effects for United Russia and non-voters

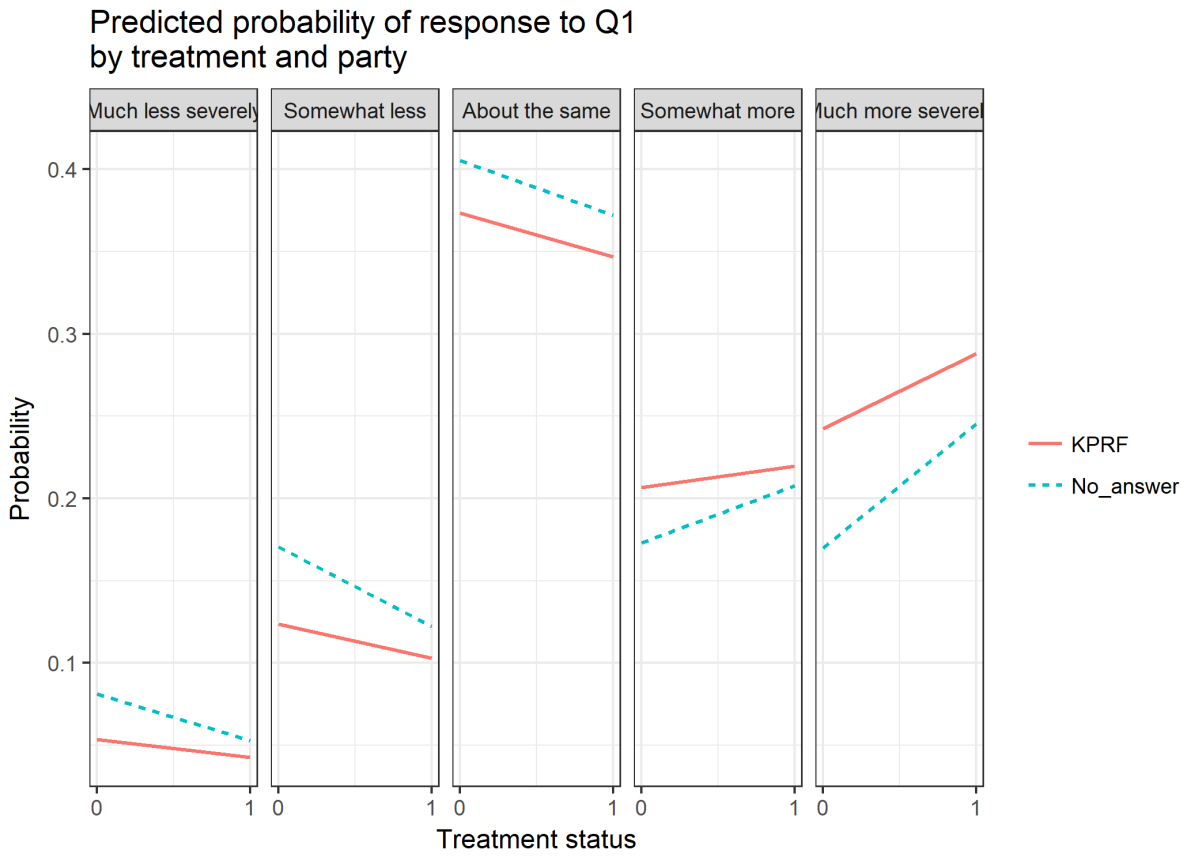

Figure 5.7: Treatment effects for KPRF and refusals

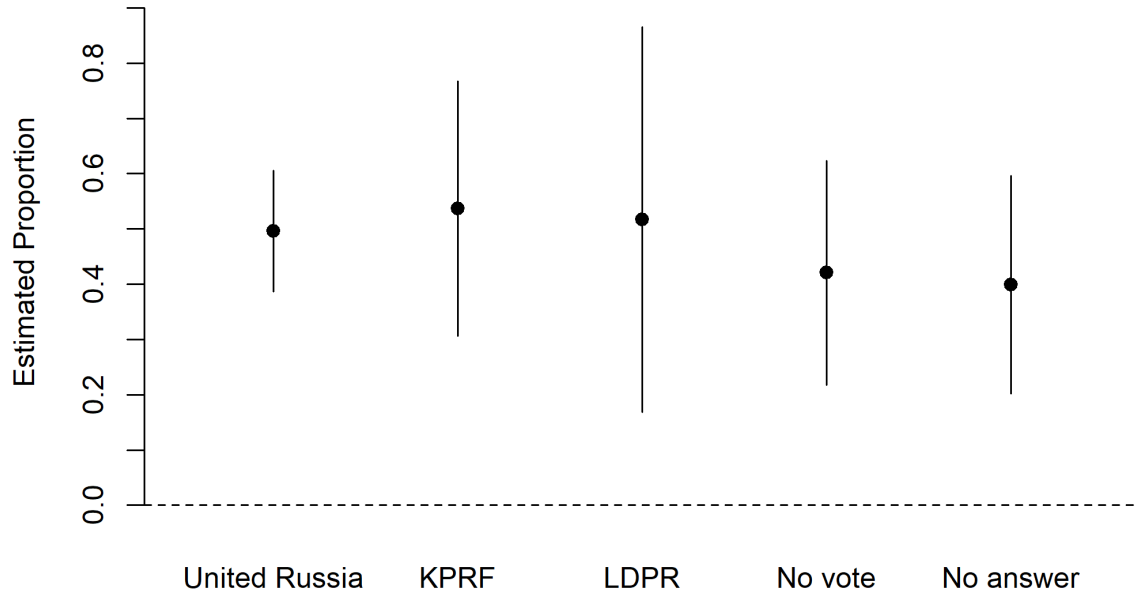

Figure 5.8: Estimated proportion of respondents answering the sensitive item in the affirmative by self-reported vote-choice in the 2011 election

necessarily be areas with a reduced risk of protest if manipulation is uncovered there. This challenges the theory that electoral manipulation is diverted to such regions in order to reduce the legitimacy costs of election-tampering and mitigate protest risk. Together with the previous results which indicate that partisan affiliation does appear to condition local attitudes toward punishment of agents, , they imply that agent-level dynamics may be a more proximate cause for variation in patterns of electoral manipulation. It also suggests that, while local conditions may do more work in explaining variation in manipulation, national conditions may be more effective at explaining protest. These conditions may include the overall competitiveness of the election, which could not be tested in the list experiment due to logistical constraints in the survey, or the organizational capacity and strategic decision-making of opposition groups. It does not appear, however, that partisan affiliation drives public opinion toward manipulation and protest in a way that can provide a ready-made resource for party leaders.

5.5 Discussion

These results help distinguish between competing explanations for the fact that more competitive districts frequently exhibit less severe electoral manipulation. While the results are not completely dispositive, they do suggest that principal-agent dynamics are an important part of the explanation. In Russia, a tough case given its difficult history with multiparty democracy, public opinion is generally supportive of stiff penalties for individuals who engage in electoral manipulation; this is especially true of supporters of the largest opposition party. This helps explain anecdotal evidence of criminal punishment for election commissioners caught tampering with the vote in their precincts: public support for such actions makes the pursuit of criminal penalties an appealing tactic for opposition parties and opposition-minded civil society groups, and makes shielding agents politically difficult for local authorities.

The experimental aspect of the project also helps better understand the causal mechanisms that underpin the principal-agent dynamic. It may be the case that agents are primarily interested in the national state of the race; certainly if their principal is defeated, the likelihood of patronage rewards diminishes sharply and the risk of political punishment rises accordingly. However, this view does not fully capture the risk that agents evaluate when weighing the costs and benefits of electoral malfeasance. Even when the principal remains in place following the election, local penalties can still be applied—as the unlucky Russian election commissioners subjected to six-figure ruble

fines can attest. The experimental data suggest that Russians as a whole do not support harsher punishments for election manipulation during competitive elections compared to non-competitive ones. Consequently, the national incentive-structure for agents does not change sharply as elections become more competitive. Instead, that risk structure appears to be more likely to be conditional on local partisan balances. Supporters of the KPRF are more willing to punish electoral manipulation that supporters of other parties, and appear somewhat more likely to support harsher punishments in close elections; a larger pool of KPRF supporters in a region is thus likely to make electoral manipulation exceptionally risky for agents.

Finally, the list-experiment conducted for Question 2 found fairly deep support for protest as a response to electoral manipulation; across different partisan groups about half of respondents were estimated to approve of such collective action. This indicates that electoral manipulation is indeed a risky endeavor for political principals. However, no differences across partisan groups were detected. This suggests that higher levels of support for electoral protest among opposition groups may not be a plausible explanation for reductions in electoral manipulation in more competitive areas. This complicates explanations for variation in manipulation that are based on legitimacy costs. Of course, further research on the role of public opinion in shaping patterns of electoral manipulation is necessary. For example, even if attitudes toward electoral protest are consistent across partisan groups, legitimacy-cost explanations may still be important if opposition supporters are easier to mobilize after tainted elections.

This research has broader implications as well. It suggests that, while normative support for clean elections is reasonably well entrenched even in an electoral authoritarian case like Russia, the depth of that support is at least somewhat conditional on partisan affiliation. This is in line with research on public support for democracy, and implies that the conditionality of support for democracy in the abstract extends to more concrete threats to democratic accountability, like rigged elections. Finally, these results may not be generalizable to more closed authoritarian regimes, where partisan competition is more restrained and governments rely more on repression than on supportive public opinion.

5.6 Conclusion

Public attitudes toward electoral manipulation, those who engage in it, and protest as a response to it are all relatively under-studied. Investigating these attitudes can help establish the micro-

foundations for theories that purport to explain variation in manipulation and its consequences. This paper represents a first attempt at using survey experimental techniques to analyze a problem that would otherwise be very difficult to untangle. Does manipulation diminish in competitive regions as a result of principal-agent dynamics, or as a result of careful allocation of resources by principals? The same empirical electoral patterns might be explained by either theory; qualitative research, though useful, would be difficult to carry out in the context of law-breaking agents and high-level political principals.

Instead, this project has attempted to analyze the incentive structure around electoral manipulation for agents and principals, by studying public opinion on criminal penalties for agents and protest against principals. It has found evidence to support the principal-agent view of manipulation: respondents clearly favor criminal penalties for agents who tamper with elections. This effect is most pronounced among supporters of the largest opposition party. It also found tentative support for the claim that competitive elections encourage supporters of the primary opposition party to favor harsher punishments. At the same time, partisan affiliation does not appear to affect respondents' attitudes toward anti-manipulation protest. This suggests that, if principals are withdrawing agents from competitive districts, it is not likely in response to the risk that the regime will suffer legitimacy costs if manipulation is exposed. That is, even ruling-party supporters appear willing to support protest against electoral manipulation. Instead, the results lend support to a principal-agent model of manipulation, in which agents who are well-informed about local conditions avoid engaging in manipulation as local conditions become riskier for them personally.

APPENDIX A

A.1 Appendix A overview

The following appendix includes additional information and robustness checks in support of the analysis presented in the main text. The first section presents histograms for the raw and centered / scaled local opposition data, along with a histogram of the final variable. The second section presents models using local opposition as a measure of local constraints, but with a new measure of patronage consolidation: executive constraints from the Polity dataset. In the third and fourth sections, additional non-electoral measures of local constraints are used. These are expert ratings of local openness and a dummy variable for ethnic republics, respectively. Fifth, a series of models of vote-buying/voter pressure and administrative fraud are conducted, after dropping one year's worth of data, in order to check for misleading results driven by outlying years. A sixth section presents multilevel models of the two dependent variables. Seventh, robustness checks show that the assumptions underlying the interaction effects shown in the main article are supported. Next, maps are provided that illustrate the estimates of falsification and vote-buying / voter pressure by region and year. Finally, OLS models are compared with FGLS models of vote-buying / voter pressure.

A.2 Raw and centered / scaled data for local opposition

The following histograms show the distributions of legislative and gubernatorial competitiveness, before and after centering and scaling by variance. The range of each variable is similar, as is the leftward skew (elevated competition is more common than restricted competition). The distribution of the final variable, local opposition is also shown.

Variables and descriptive statistics

Table A.1 presents correlation coefficients for the three explanatory variables and the two dependent variables, showing the modest negative correlation between any fraud and absentee coefficient. Table A.2 provides descriptive statistics for all variables used in the study.

Local opposition and executive constraints

As an alternative measure of patronage consolidation, I use a measure of executive constraints taken from the Polity IV dataset (Marshall, Gurr, and Jaggers 2016). This variable captures the ability of other actors to limit the decision-making powers of chief executives, with higher values indicating greater constraints (and thus less consolidation). In a context like Russia, where patronage

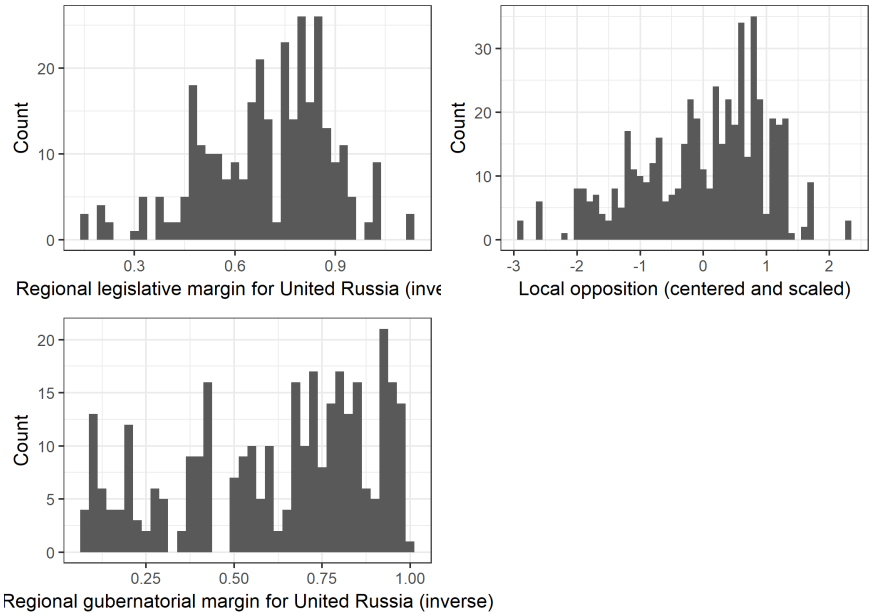

Figure A.1: Histograms for local opposition (raw and scaled)

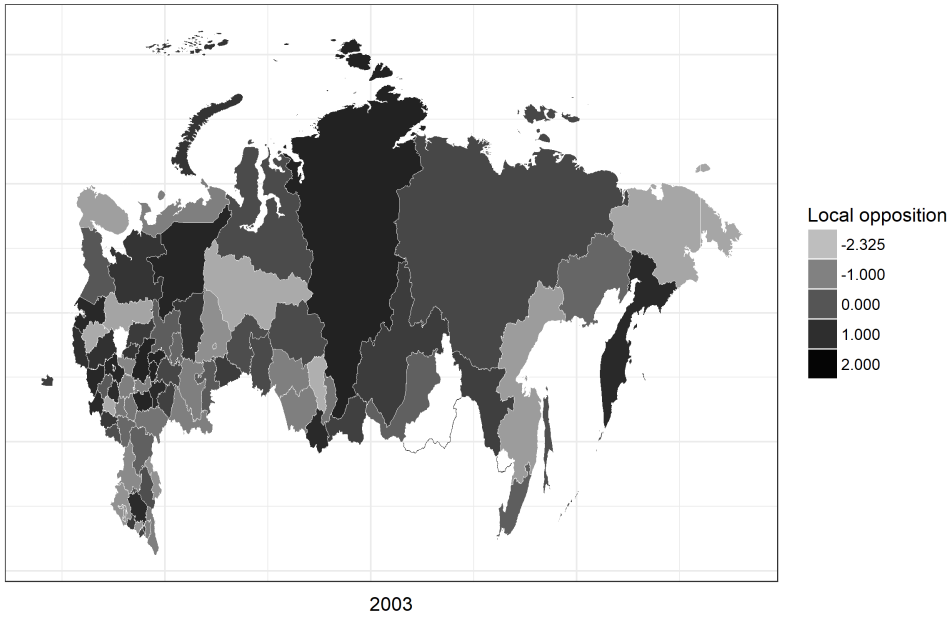

Figure A.2: Local opposition in 2003

	Putin app.	Local opp.	UR gov. share	Any fraud	Absentee coef.
Putin approval	1.00	0.09	-0.15	0.03	0.05
Local opposition	0.09	1.00	0.20	-0.09	0.18
UR governors share	-0.15	0.20	1.00	-0.01	-0.05
Any fraud	0.03	-0.09	-0.01	1.00	-0.2
Absentee coefficient	0.05	0.18	-0.05	-0.2	1.00

Table A.1: Correlation coefficients for explanatory and dependent variables

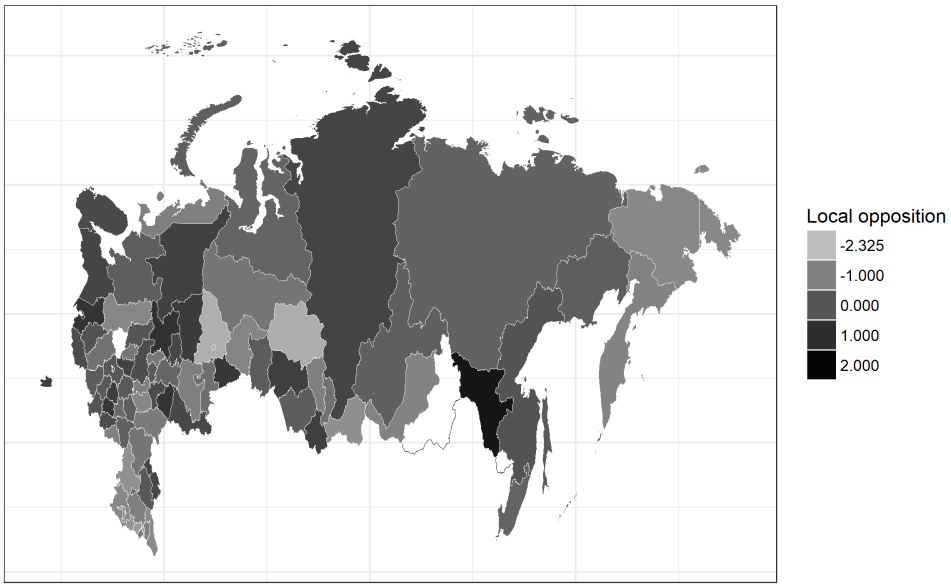

Figure A.3: Local opposition in 2011

	n	Mean	SD	Median	Min	Max
Local opposition	471	0	1	0.169	-2.677	2.075
UR governors share	508	0.555	0.166	0.659	0.284	0.695
Putin approval	508	0.762	0.081	0.790	0.640	0.860
Presidential	508	0.500	0.500	0.500	0	1
Population (log)	506	7.038	1.032	7.101	2.890	9.360
Pensioners (log)	508	5.598	0.160	5.615	4.768	5.901
Poverty	500	0.208	0.105	0.185	0.057	0.828
Higher education	490	7.332	3.204	6.974	0	22.590
Gov. employees (log)	500	1.847	0.393	1.811	0.847	3.518
Urban	506	0.689	0.139	0.692	0.237	1
Unemployment	507	7.244	7.250	6.700	0	55.500
Any fraud	482	0.257	0.438	0	0	1
Absentee vote coefficient	500	0.135	0.330	0.159	-1.617	1.041

Table A.2: Descriptive statistics

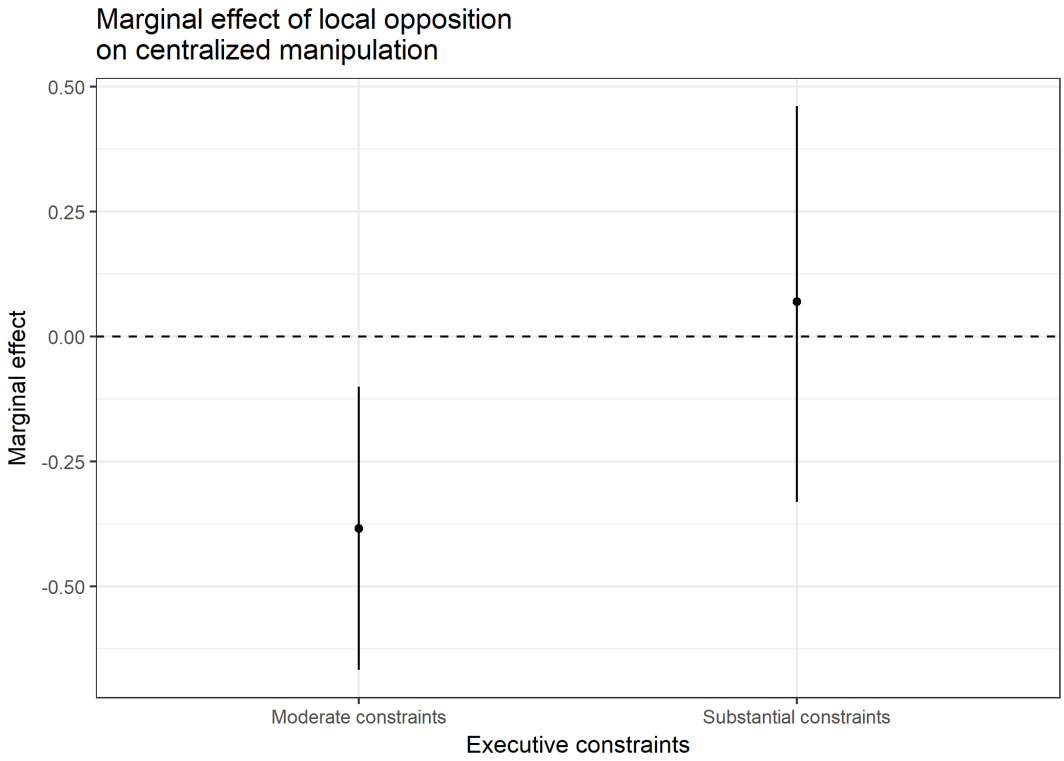

Figure A.4: Marginal effects of local opposition on falsification, conditional on executive constraints

politics is endemic, a lack of limits on the executive is both a symptom and cause of consolidated ability to dispense patronage resources. The variable is lagged so that it captures the environment prior to the election at hand. In this section, I show the results of models using local opposition as a measure of local constraints; in addition, I also include executive constraints in later models that employ different measures of local constraints. Since higher values of executive constraints indicate less consolidated patronage, I expect that falsification will be more likely in uncompetitive regions when national executive constraints are low, while dispersed forms of manipulation will be more likely in competitive regions under the same circumstances. As Table A.3 and the accompanying figures show, these hypotheses are supported.

Local openness and electoral manipulation

One alternative to local openness as a measure of local constraints is provided by expert ratings of the 'democratic-ness' of each of Russia's regions (Petrov and Titkov 2010). These ratings evaluate each region on ten dimensions, including the independence of regional judiciaries and security services, transparency, political pluralism, media independence, and civil society activity. Higher

	Dependent variable:	
	Any fraud	Absentee coef.
	Logistic	*FGLS*
	(1)	(2)
Presidential	−0.082	0.146***
	(0.237)	(0.029)
Population (log)	−0.517**	−0.008
	(0.219)	(0.028)
Pensioners (log)	−1.824**	0.382***
	(0.811)	(0.103)
Poverty	0.488	−0.011
	(1.745)	(0.230)
Higher education	−0.002	−0.0002
	(0.043)	(0.006)
Gov. employees (log)	−1.032*	0.023
	(0.570)	(0.072)
Urban	0.982	0.473***
	(1.097)	(0.140)
Unemployment	−0.023	−0.004
	(0.025)	(0.003)
Local opposition	−2.201**	0.383***
	(1.053)	(0.133)
Executive constraints	−0.376	0.066
	(0.382)	(0.048)
Local opp. : Executive constraints	0.454*	−0.074**
	(0.242)	(0.031)
Constant	15.735**	−2.641***
	(6.243)	(0.779)
Observations	451	464
R^2		0.211
Adjusted R^2		0.191
Log Likelihood	−245.814	
Akaike Inf. Crit.	515.628	
Residual Std. Error		0.513 (df = 452)
Note:	*p<0.1; **p<0.05; ***p<0.01	

Table A.3: Models of manipulation using local opposition and executive constraints

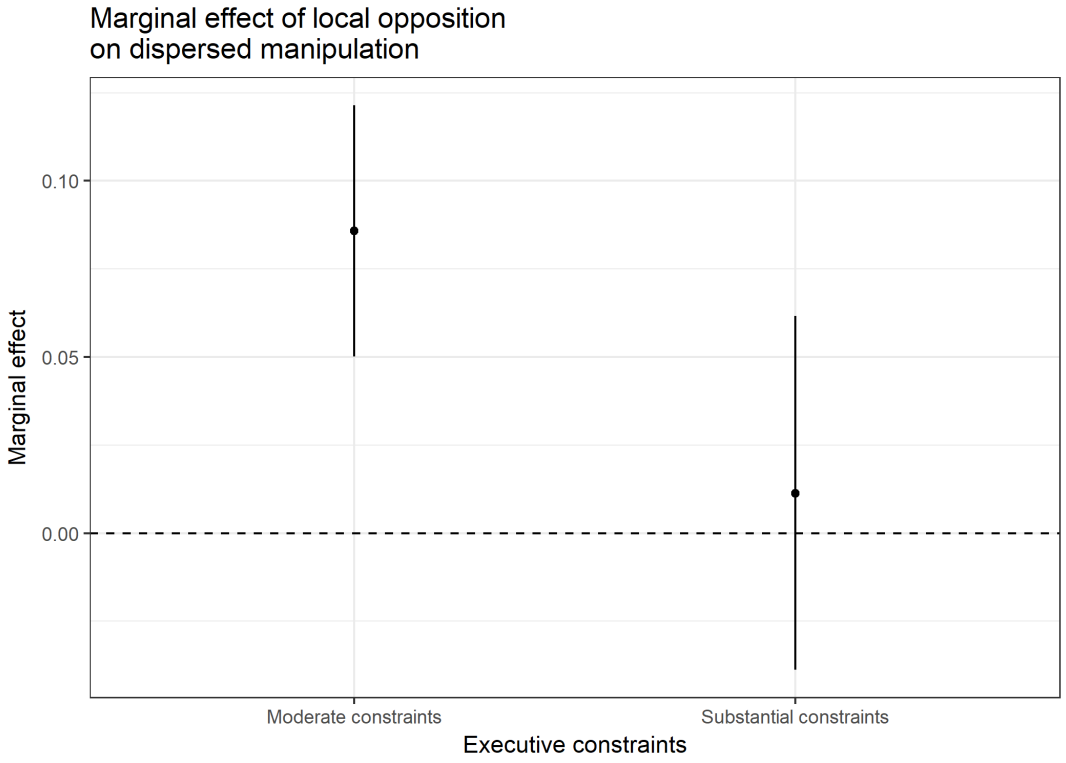

Figure A.5: Marginal effect of local opposition on vote-buying / voter pressure, conditional on executive constraints

scores indicate greater political openness and thus greater local constraints, as some combination of judicial independence, media freedom, and civil society activism increases.

	Dependent variable:		
	Any fraud		
	(3)	(4)	(5)
Presidential	−0.14	−0.12	−0.16
	(0.23)	(0.23)	(0.24)
Population (log)	−0.42*	−0.41*	−0.37*
	(0.21)	(0.21)	(0.21)
Pensioners (log)	−2.30***	−2.27***	−1.98***
	(0.79)	(0.79)	(0.76)
Poverty	1.48	1.44	0.01
	(1.67)	(1.69)	(1.42)
Higher education	0.01	0.01	0.03
	(0.04)	(0.04)	(0.04)
Gov. employees (log)	−1.03*	−1.02*	−0.82
	(0.57)	(0.56)	(0.54)
Urban	0.17	0.23	0.19
	(1.09)	(1.10)	(1.07)
Unemployment	−0.03	−0.02	−0.01
	(0.03)	(0.02)	(0.02)
Local openness	0.16**	−0.40**	0.14
	(0.06)	(0.17)	(0.19)
UR governors share	10.04***		
	(3.63)		
Local openness : UR govs. share	−0.30***		
	(0.11)		
Executive constraints (lag)		−3.09**	
		(1.26)	
Local openness : Executive constraints (lag)		0.09**	
		(0.04)	
Putin approval			5.88
			(7.67)
Local openness : Putin approval			−0.19
			(0.25)
Constant	10.97**	29.60***	9.52
	(5.56)	(8.33)	(8.14)
Observations	463	463	463
Log Likelihood	−254.94	−255.82	−258.60
Akaike Inf. Crit.	533.88	535.65	541.21
Note:			*p<0.1; **p<0.05; ***p<0.01

Table A.4: Logit models of falsification using local openness

	Dependent variable:		
	Absentee coefficient		
	(6)	(7)	(8)
Presidential	0.16***	0.15***	0.15***
	(0.03)	(0.03)	(0.03)
Population (log)	−0.02	−0.02	−0.03
	(0.03)	(0.03)	(0.03)
Pensioners (log)	0.41***	0.42***	0.41***
	(0.10)	(0.10)	(0.10)
Poverty	0.25	0.18	0.31*
	(0.22)	(0.22)	(0.19)
Higher education	−0.001	0.0003	−0.002
	(0.01)	(0.01)	(0.01)
Gov. employees (log)	0.02	0.03	0.01
	(0.07)	(0.07)	(0.07)
Urban	0.41***	0.39***	0.40***
	(0.14)	(0.14)	(0.14)
Unemployment	−0.01*	−0.01*	−0.01**
	(0.003)	(0.003)	(0.003)
Local openness	0.001	0.03	−0.002
	(0.01)	(0.02)	(0.02)
UR govs. share	−0.56		
	(0.46)		
Executive constraints (lag)		0.19	
		(0.16)	
Putin approval			−0.38
			(0.93)
Local openness :UR govs. share	0.02		
	(0.01)		
Local openness : Executive constraints (lag)		−0.01	
		(0.005)	
Local openness : Putin approval			0.02
			(0.03)
Constant	−2.39***	−3.61***	−2.39**
	(0.72)	(1.01)	(1.02)
Observations	476	476	476
R^2	0.21	0.21	0.20
Adjusted R^2	0.19	0.19	0.19
Residual Std. Error (df = 464)	0.51	0.51	0.51
F Statistic (df = 11; 464)	10.96***	10.99***	10.88***
Note:			*p<0.1; **p<0.05; ***p<0.01

Table A.5: FGLS models of dispersed manipulation using local openness

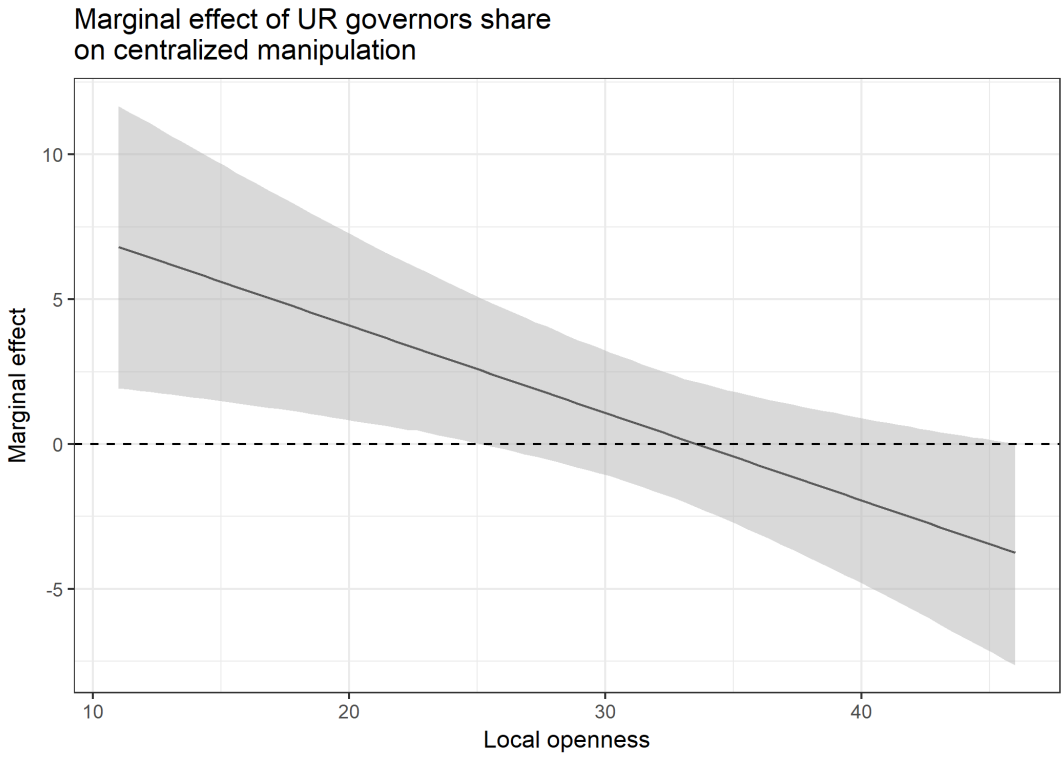

Figure A.6: Marginal effect of UR governor share on falsification, conditional on local openness

The results, shown in Tables A.4 and A.5, are substantively similar to those presented for local opposition in the main text. With regard to falsification, falsification is significantly more likely in regions with low local openness than in high-openness ones when patronage is more consolidated via United Russia (Figure A.6). A similar result is suggested when executive constraints is used (Figure A.7); note that the relationship appears inverted because executive constraints is an inverse measure of patronage consolidation. Putin approval does not appear to have a significant relationship with falsification at any level of local openness (Figure A.8). Likewise, Figures A.9 and A.10 show an increase in the severity of dispersed manipulation in high-constraint regions as United Russia becomes more dominant and when constraints on the chief executive decline. The marginal effect of local openness is not affected by Putin approval; it is positive and similarly sized regardless of the incumbent's approval rating. Similarly, the effect of Putin approval itself is not significant at any level of local openness (Figures A.11 and A.12).

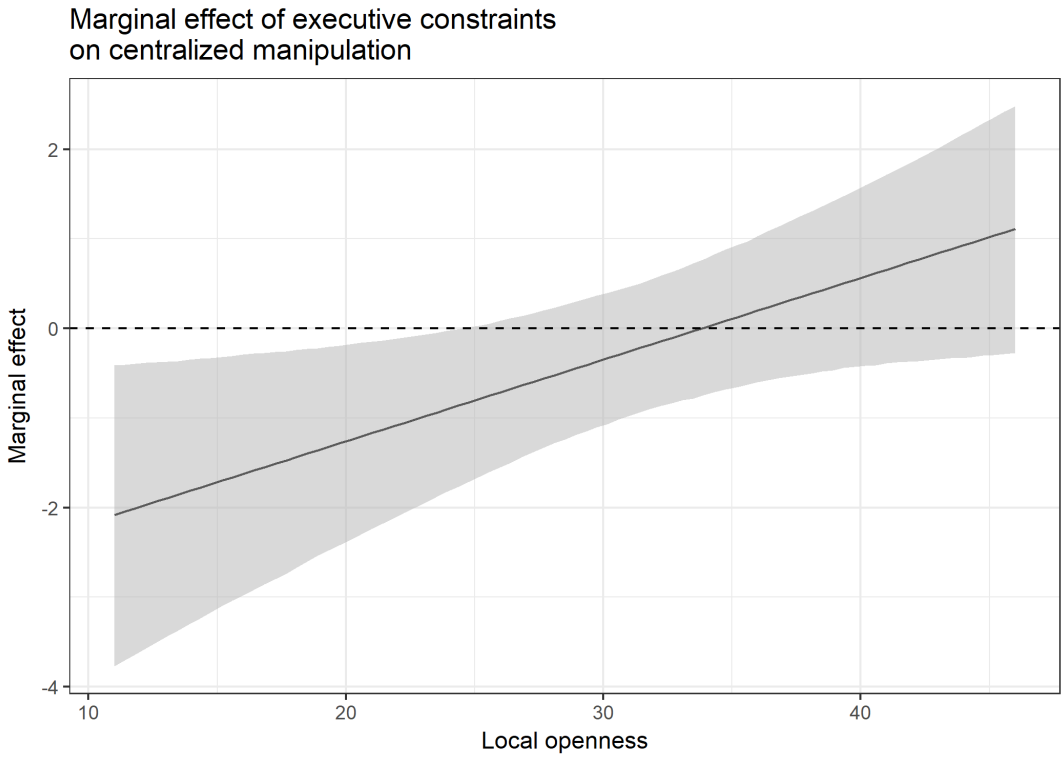

Figure A.7: Marginal effect of national executive constraints on falsification, conditional on local openness

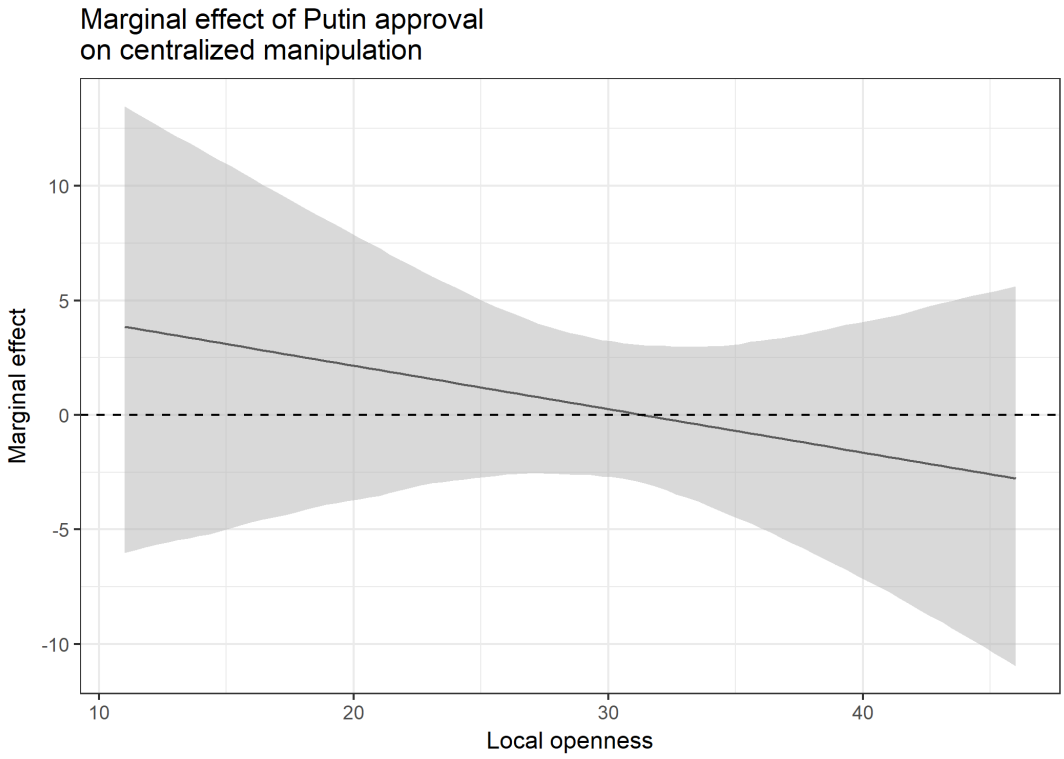

Figure A.8: Marginal effect on falsification, using local openness and Putin approval

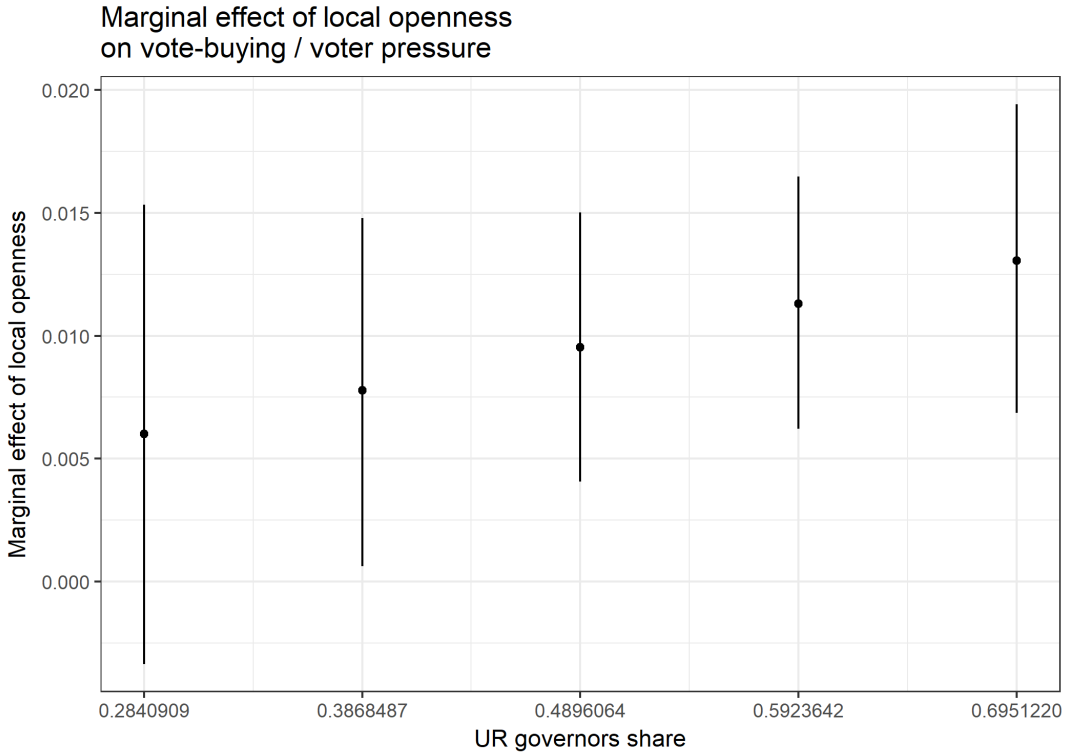

Figure A.9: Interaction of local openness and UR governors share on vote-buying / voter pressure

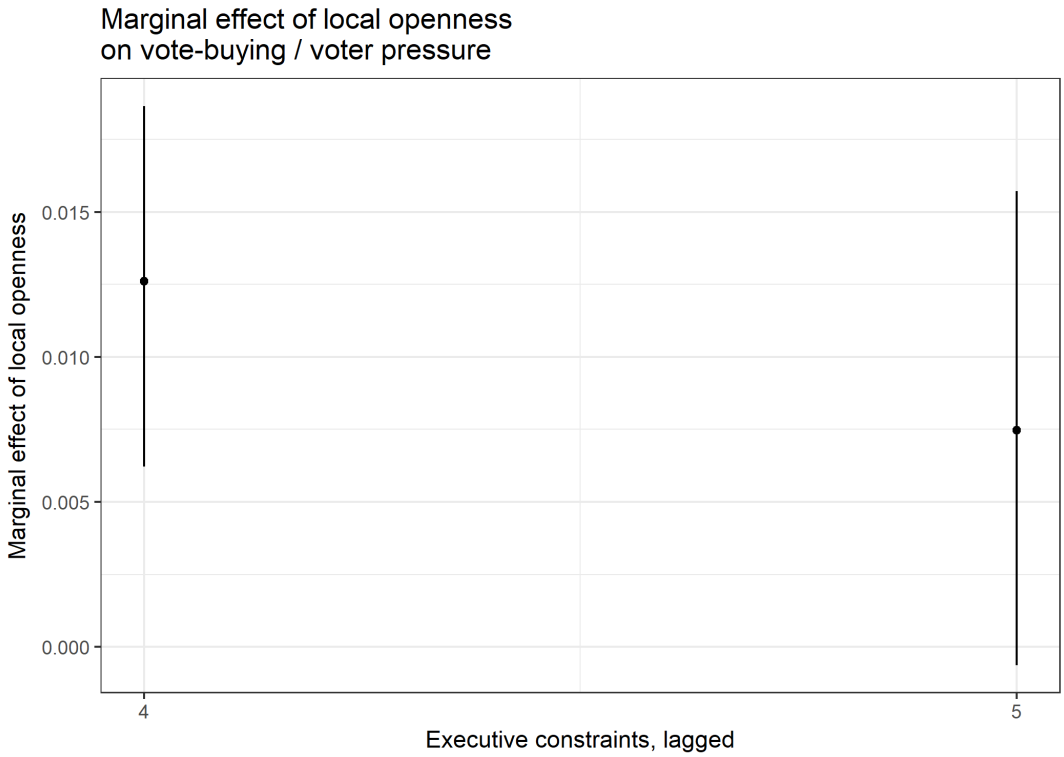

Figure A.10: Interaction of local openness and executive constraints on vote-buying / voter pressure

Non-electoral measure of local constraints: Ethnic republic status

Ethnicity is an important marker of political openness, since ethnic homogeneity is known to make electoral manipulation easier, by reducing the costs of monitoring compliance and reducing the risk of exposure (Hale, 2007). Minority ethnicity is especially likely to play this role in Russia, where it has been politicized by the central government since the early days of the Soviet Union. Beginning in the 1920s, the Soviet government recognized ethnic homelands within the Russian Soviet Republic. Minority ethnic elites were promoted into leadership positions in the regional communist party, government, industries, and educational institutions. Minority ethnic identity in these republics was also reinforced through officially-promoted symbols like national museums, literature, art, music, and folklore (Martin, 2001, pp. 9-17). As a result, minority ethnic identities became highly salient, and served to unify regional elites. These titular ethnic regions often claimed the most independence from the center in the 1990s, but have been among the most devoted to United Russia in the period of Putin's government (Hale, 2007). The variable ethnic republic is a binary variable that takes a value of one if a region is a titular ethnic republic within the Russian Federation, and a value of

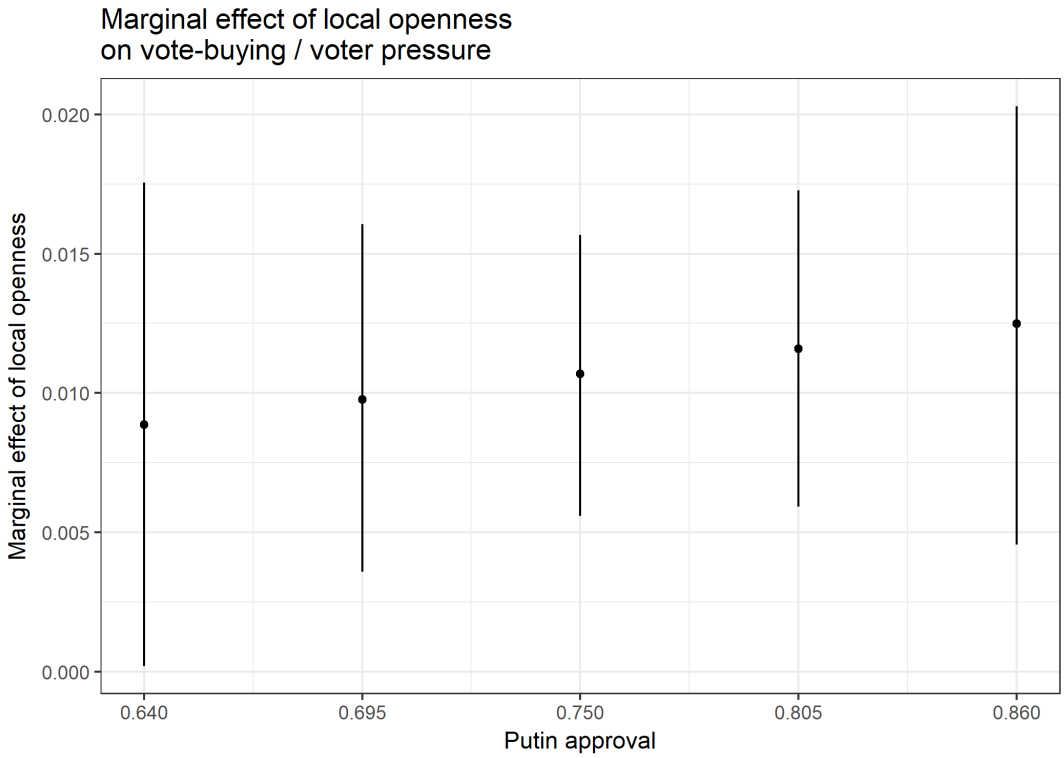

Figure A.11: Marginal effect of local openness on vote-buying / voter pressure at varying levels of Putin approval rating

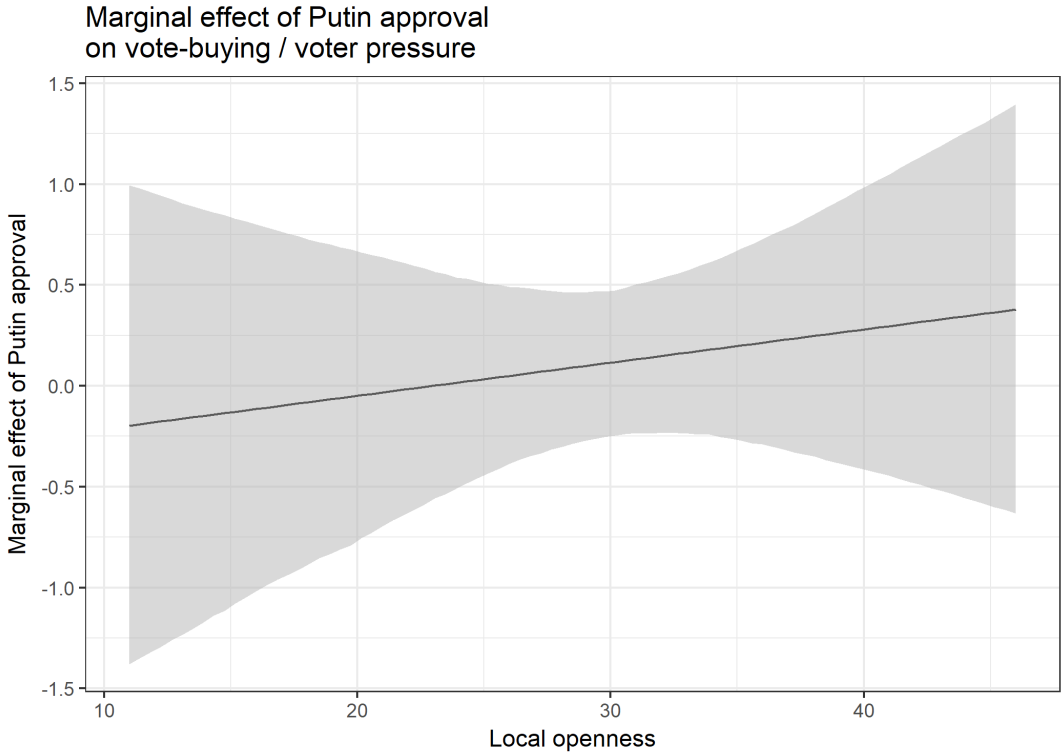

Figure A.12: Marginal effect of Putin approval rating on vote-buying / voter pressure at varying levels of local openness

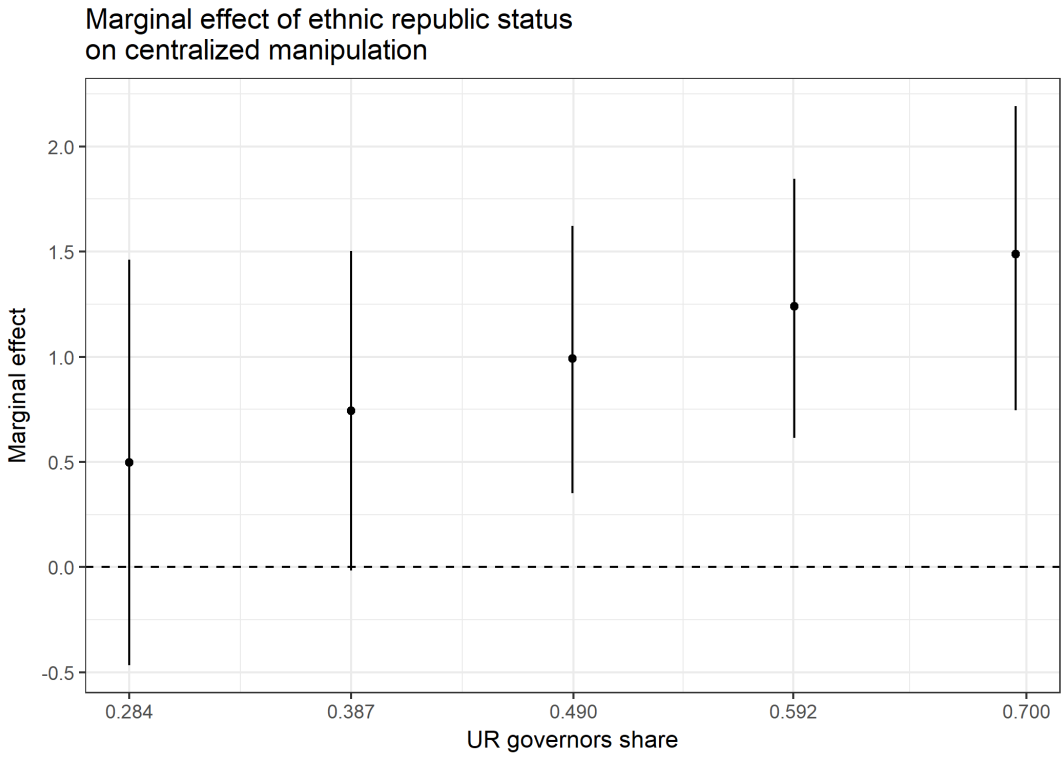

Figure A.13: Marginal effect of ethnic republic status on falsification, conditional on UR governors share

zero for all other regions. Since republics are expected to be less politically open and have lower local constraints on average, ethnic republic should be positively correlated with administrative fraud when national patronage is more consolidated. As Tables A.6 and A.7 and Figures A.13 through A.18 show, the results are partially supportive of the consolidation-constraint model, and not supportive of the incumbent-popularity model. Falsification is significantly more likely to occur in ethnic republics than in non-republic regions as United Russia becomes the dominant patronage vehicle in the country; the probability of fraud nearly doubles in republics, while remaining constant in non-republics. However, the interactive hypothesis is not borne out when executive constraints is used as a measure of patronage consolidation. Still, while the probability of fraud is higher in republics than in other regions, this difference is not affected by Putin's approval rating, lending no support to the incumbent-popularity hypothesis.

With regard to dispersed forms of manipulation, the consolidation-constraint model is also largely supported while the incumbent-popularity model is not. As UR governors share increases, dispersed manipulation becomes more severe in non-republics (reflected in the negative marginal effects in

	Dependent variable:		
	Any fraud		
	(9)	(10)	(11)
Presidential	−0.11	−0.09	−0.14
	(0.24)	(0.24)	(0.24)
Population (log)	−0.15	−0.15	−0.14
	(0.22)	(0.22)	(0.22)
Pensioners (log)	−1.66**	−1.64**	−1.46*
	(0.80)	(0.80)	(0.78)
Poverty	1.37	1.36	0.48
	(1.63)	(1.66)	(1.42)
Higher education	−0.003	−0.002	0.01
	(0.04)	(0.04)	(0.04)
Gov. employees (log)	−0.42	−0.40	−0.29
	(0.58)	(0.58)	(0.55)
Urban	2.14*	2.18*	1.98*
	(1.18)	(1.19)	(1.17)
Unemployment	−0.03	−0.03	−0.01
	(0.03)	(0.03)	(0.02)
Ethnic republic	−0.19	4.44**	1.84
	(0.85)	(2.21)	(2.28)
UR governors share	0.12		
	(1.12)		
Ethnic republic:UR governors share	2.40*		
	(1.44)		
Executive constraints		−0.04	
		(0.39)	
Ethnic republic:Executive constraints		−0.76	
		(0.50)	
Putin approval			0.58
			(1.79)
Ethnic republic:Putin approval			−0.92
			(2.95)
Constant	8.21	8.18	6.47
	(5.70)	(6.38)	(5.94)
Observations	462	462	462
Log Likelihood	−250.13	−250.38	−251.65
Akaike Inf. Crit.	524.27	524.77	527.29
Note:			*p<0.1; **p<0.05; ***p<0.01

Table A.6: Logit models of falsification, using ethnic republic status

	Dependent variable:		
	Absentee coef.		
	(12)	(13)	(14)
Presidential	0.15***	0.15***	0.15***
	(0.03)	(0.03)	(0.03)
Population (log)	−0.03	−0.03	−0.03
	(0.03)	(0.03)	(0.03)
Pensioners (log)	0.39***	0.41***	0.40***
	(0.10)	(0.10)	(0.10)
Poverty	0.16	0.08	0.15
	(0.22)	(0.22)	(0.19)
Higher education	−0.003	−0.002	−0.003
	(0.01)	(0.01)	(0.01)
Gov. employees (log)	−0.02	−0.01	−0.02
	(0.08)	(0.08)	(0.07)
Urban	0.44***	0.42***	0.43***
	(0.15)	(0.15)	(0.15)
Unemployment	−0.01*	−0.005	−0.01**
	(0.003)	(0.003)	(0.003)
Ethnic republic	0.03	−0.36	−0.32
	(0.12)	(0.31)	(0.31)
UR governors share	0.03		
	(0.14)		
Executive constraints		0.02	
		(0.05)	
Putin approval			0.07
			(0.21)
Ethnic republic:UR governors share	−0.19		
	(0.20)		
Ethnic republic:Executive constraints		0.07	
		(0.07)	
Ethnic republic:Putin approval			0.32
			(0.40)
Constant	−2.18***	−2.33***	−2.24***
	(0.75)	(0.82)	(0.78)
Observations	474	474	474
R^2	0.18	0.18	0.18
Adjusted R^2	0.16	0.16	0.16
Residual Std. Error (df = 462)	0.52	0.52	0.52
Note:	*p<0.1; **p<0.05; ***p<0.01		

Table A.7: FGLS models of dispersed manipulation, using ethnic republic status

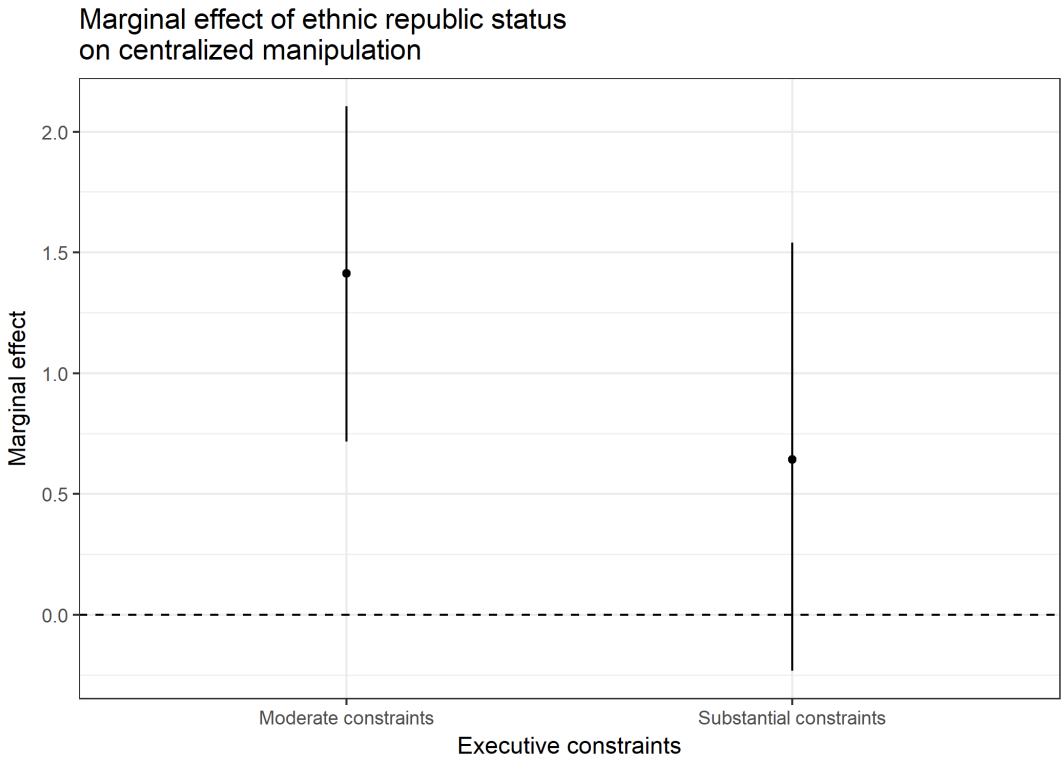

Figure A.14: Marginal effect of ethnic republic status on falsification, conditional on executive constraints

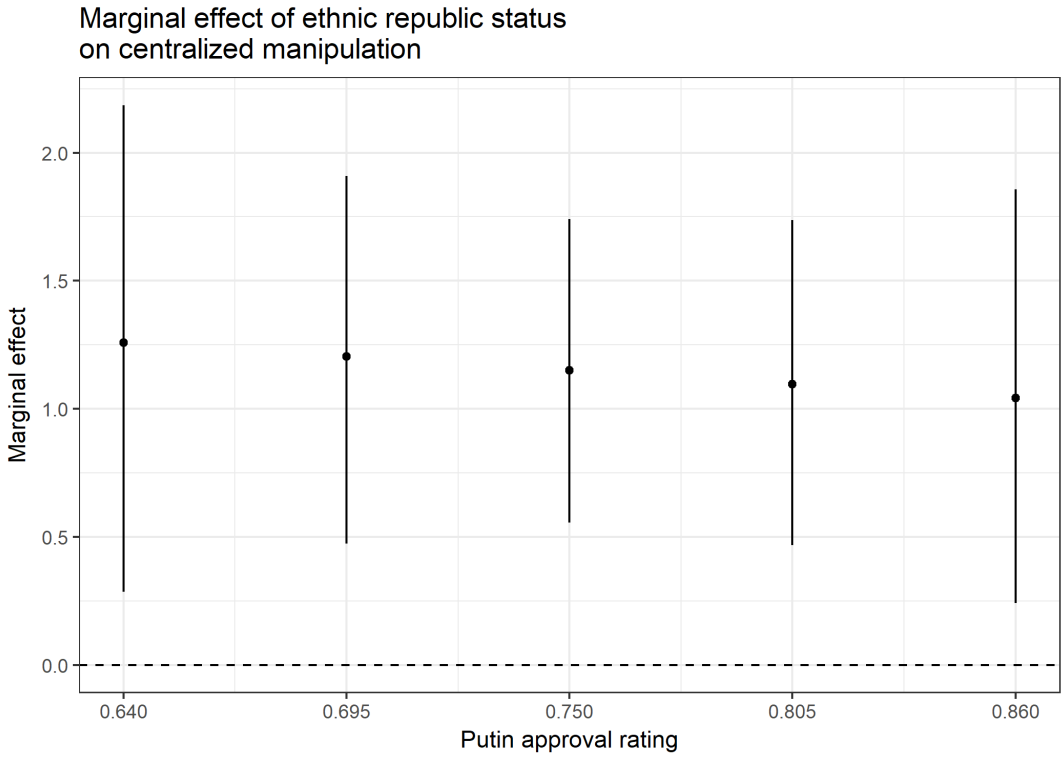

Figure A.15: Marginal effect of ethnic republic status on falsification, conditional on Putin approval

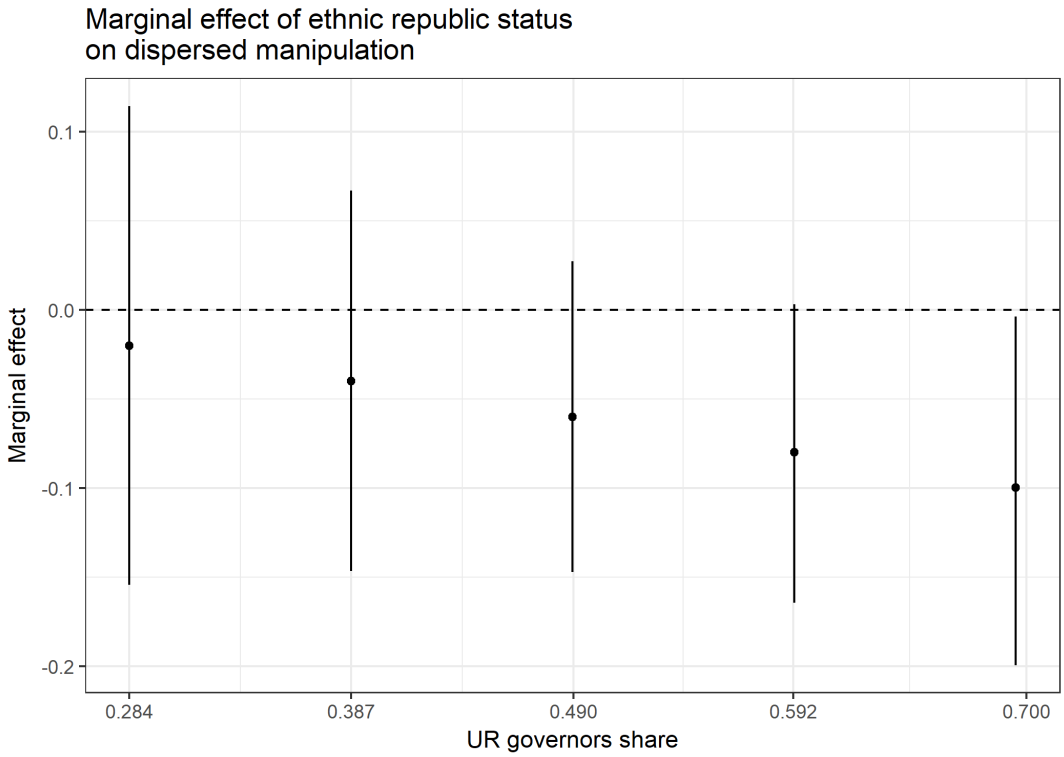

Figure A.16: Marginal effect of ethnic republic status on vote-buying / voter pressure at varying levels of UR governors share

Figure A.16), though this result is only statistically significant at the highest observed level of patronage consolidation. Likewise, non-republics see more dispersed manipulation when executive constraints are lower, though this effect barely achieves conventional statistical significance. Finally, Putin's approval rating does not significantly change the effect of regional status on the severity of dispersed manipulation.

Interaction term robustness checks

In order to avoid misinterpreting interaction effects, Hainmueller et al. (2016) recommend a simple diagnostic. Based on their recommendation, I divide the data into three bins based on terciles of the variable local opposition and produce an estimate of the dependent variable for each tercile (drawing on dummy variables for each tercile as well as the control and explanatory variables in the main models. The binning estimates are non-parametric, and thus can be used to test the assumption that the interaction effect is linear (as assumed in the models). I use this procedure to test each dependent variable, using local opposition and UR governors share as the explanatory variables. Figure A.19 shows the results for centralized manipulation (fraud) and Figure A.20 shows

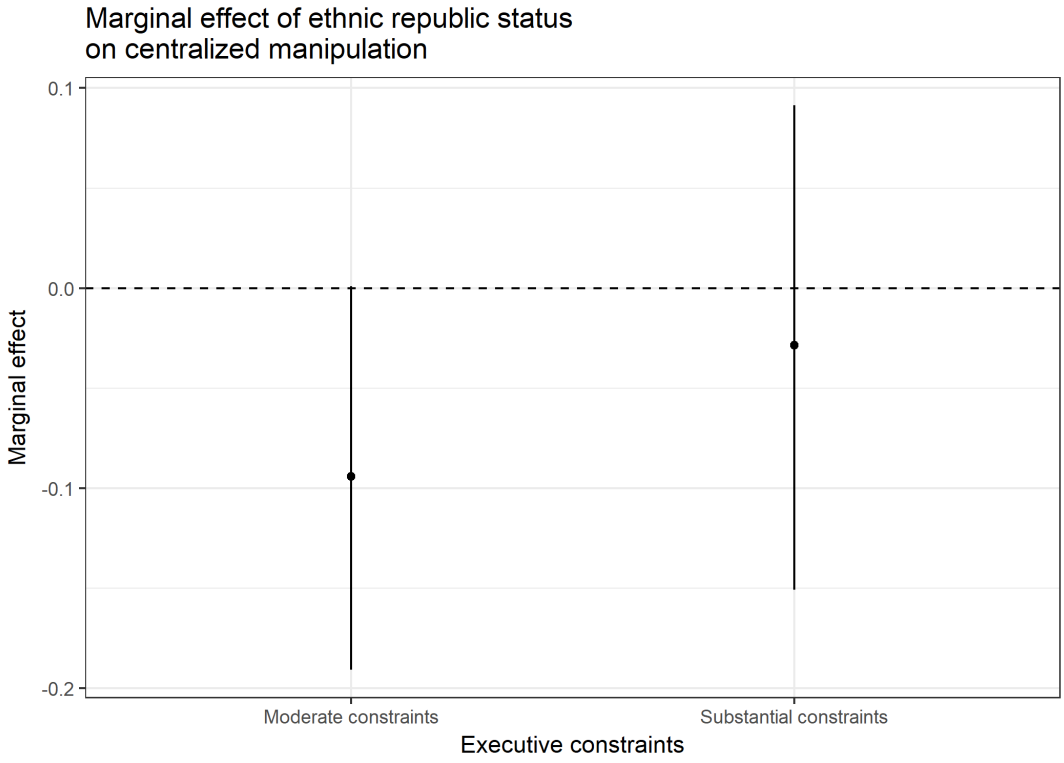

Figure A.17: Marginal effect of ethnic republic status on vote-buying / voter pressure at varying levels of executive constraint

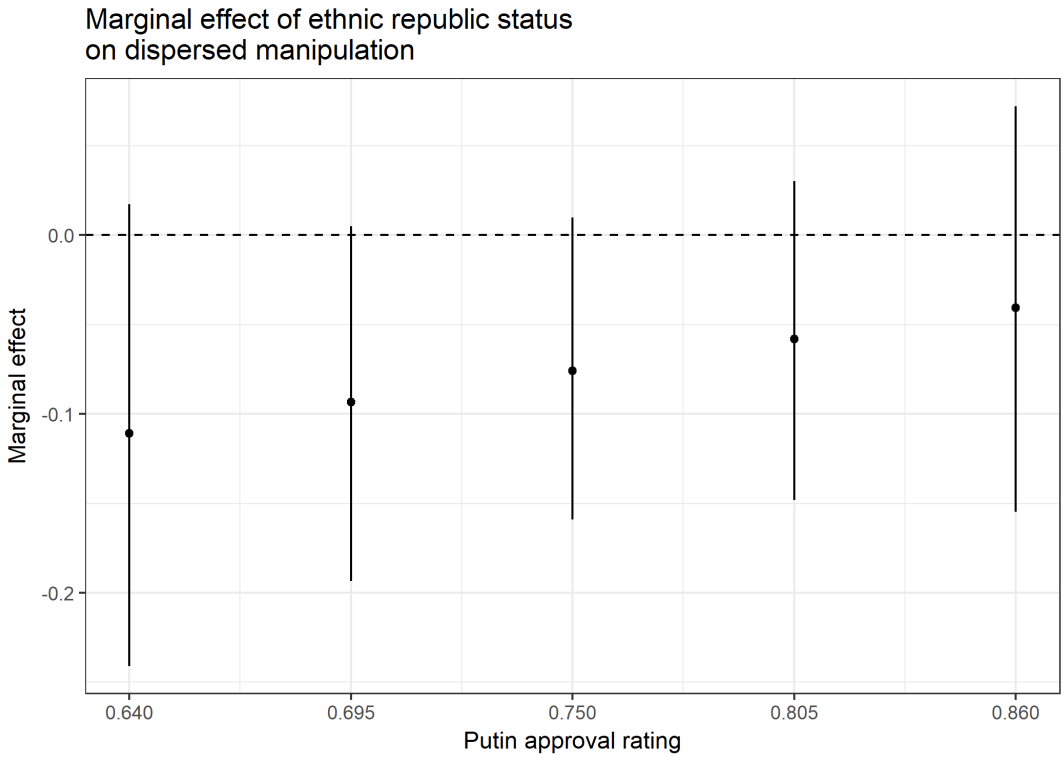

Figure A.18: Marginal effect of ethnic republic status on vote-buying / voter pressure at varying levels of Putin approval

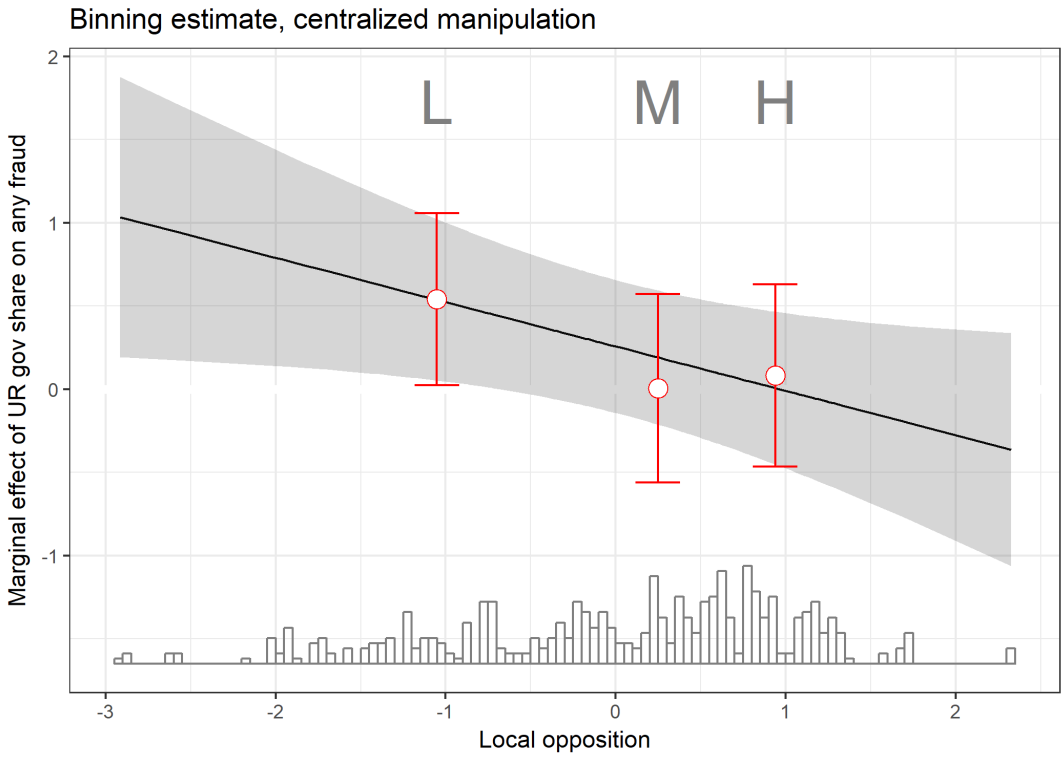

Figure A.19: Testing the assumptions of a linear interaction of UR governors share and local opposition on falsification

the results for dispersed manipulation (vote-buying and voter pressure). In both cases, the solid line and ribbon represent the linear interaction model with 95% confidence intervals, while the dots and vertical lines represent the binned estimates for each tercile of the data with 95% confidence intervals. A histogram at the bottom of the figures shows the distribution of the data. Figure A.19 shows that the assumptions of the linear interaction model are well-supported for the model of any fraud; all three binning estimates are close to the marginal effect line and well within the confidence intervals. The assumptions of the linear model are generally supported for the model of absentee coefficient (Figure A.20), but with an additional wrinkle that points toward future research. In that case, the middle-tercile binning estimate falls slightly above the confidence interval of the linear estimate (though the two sets of confidence intervals overlap comfortably). This suggests that it may be the case that vote-buying and voter pressure are more common at middle values of local opposition, but decline as local constraints increase further. This hypothesis might be tested in future research on cases with higher levels of local contestation.

Additionally, Esarey and Sumner (2018) warn that models that make use of interaction terms are

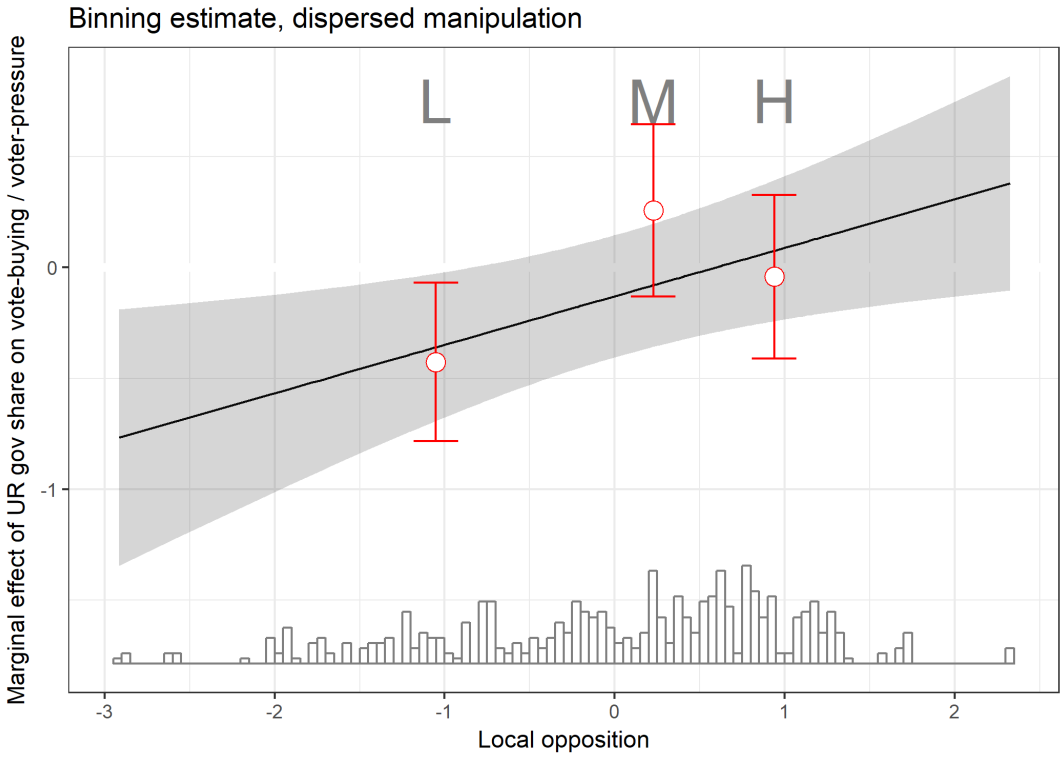

Figure A.20: Testing the assumptions of a linear interaction of UR governors share and local opposition on vote-buying / voter pressure

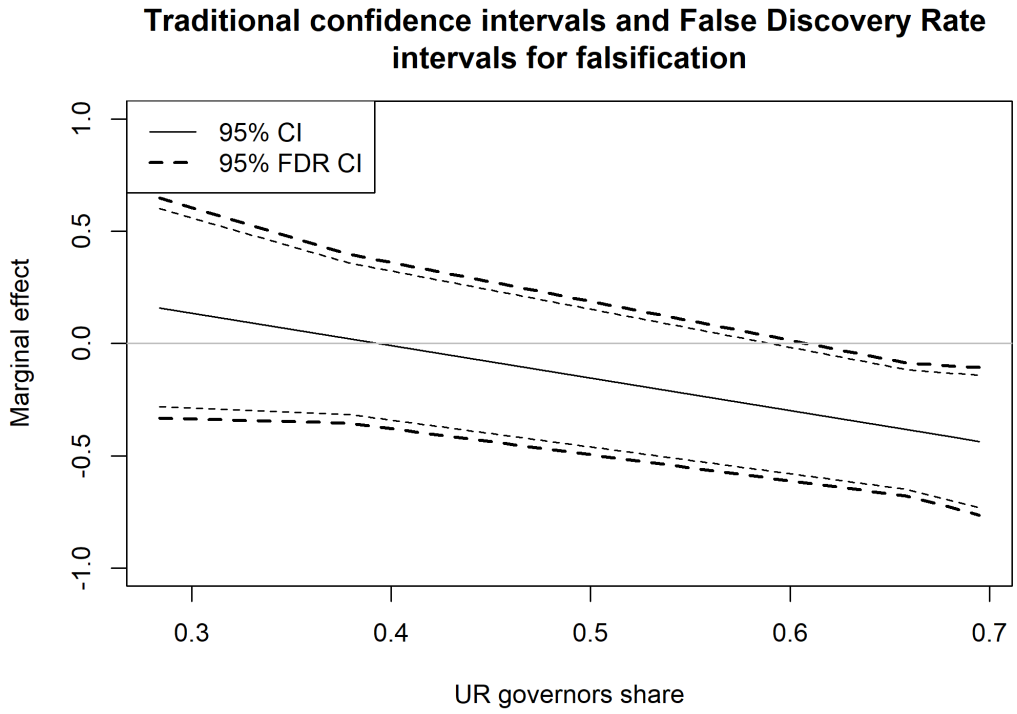

Figure A.21: Marginal effect of local opposition on falsification, conditional on UR governors share, with standard and FDR confidence intervals

vulnerable to false positives, since interaction models effectively partition the data into subsamples; testing the same variables against these subsamples raises the risk that coefficients will appear statistically significant purely due to chance. They suggest a method for compensating for this risk by controlling the false discovery rate (FDR) and adjusting standard errors for the marginal effects accordingly. Figures A.21 and A.22 demonstrate this procedure, and show that even when compensating for the FDR, the marginal effect of local constraints on vote-buying / voter pressure and falsification remain statistically significant (and inversely related) at higher levels of patronage consolidation.

Maps of dependent variables

Figures A.23 through A.28 and A.29 through A.34 illustrate the estimated levels of falsification and vote-buying / voter pressure by region, respectively. Since the falsification estimate is binary, the first set of maps are two-toned, with regions colored in black indicating regions that showed suspiciously non-random trailing digits for either the ruling party or the largest opposition party (darker gray indicates an NA value for the estimate). For the second set of maps, brighter values

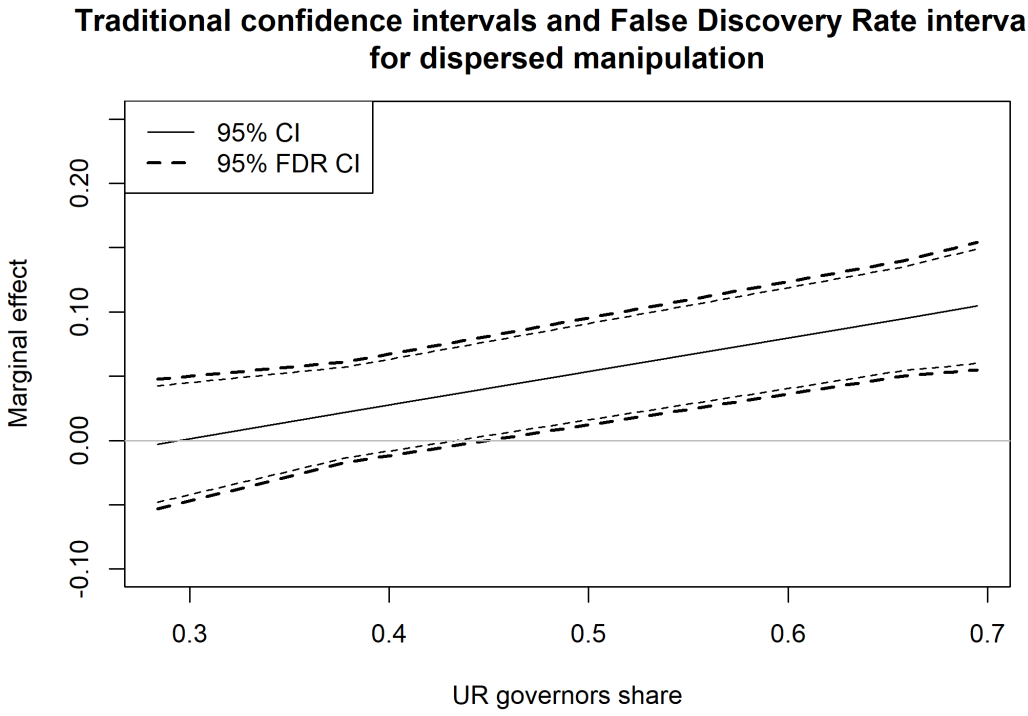

Figure A.22: Marginal effect of local opposition on vote-buying / voter pressure, conditional on UR governors share, with standard and FDR confidence intervals

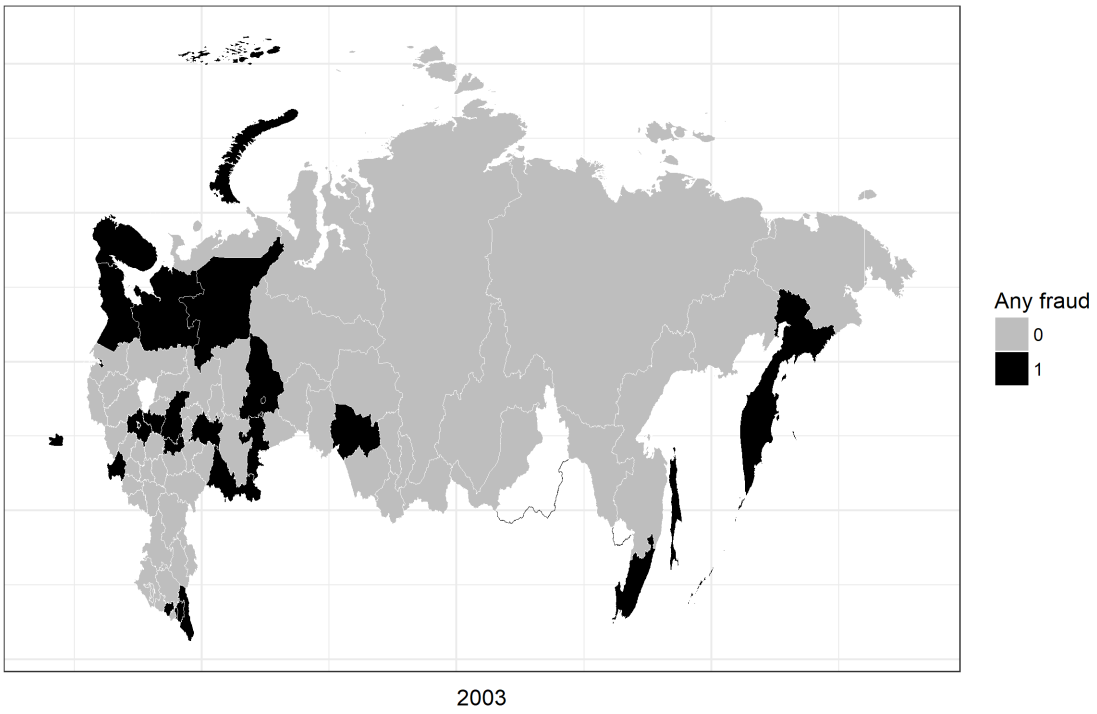

Figure A.23: Falsification, 2003

indicate a greater reliance on vote-buying / voter pressure. The maps allow for inspection of individual regions' results, but also depict some general patterns. Falsification regularly appears in the same regions from election to election, especially in Russia's Caucasus regions, Siberia, and the far east. The prevalence of vote-buying and voter pressure appears to increase over time, as does the variation among regions; these techniques are especially common in Russia's western regions during later elections.

Figure A.24: Falsification, 2004

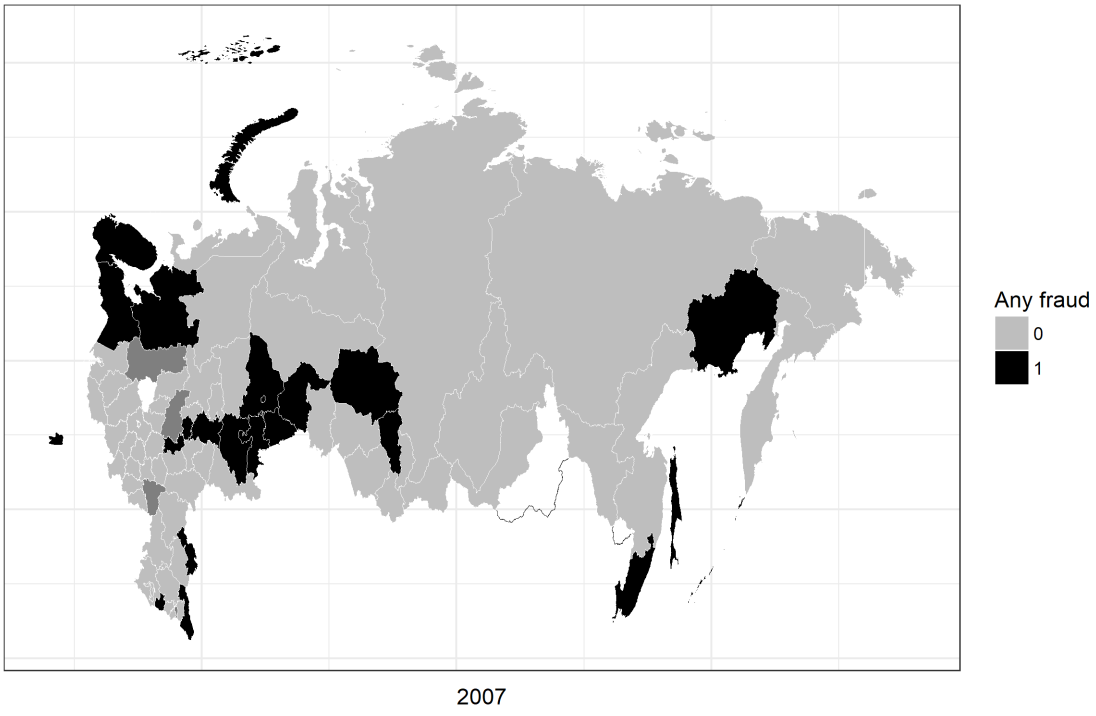

Figure A.25: Falsification, 2007

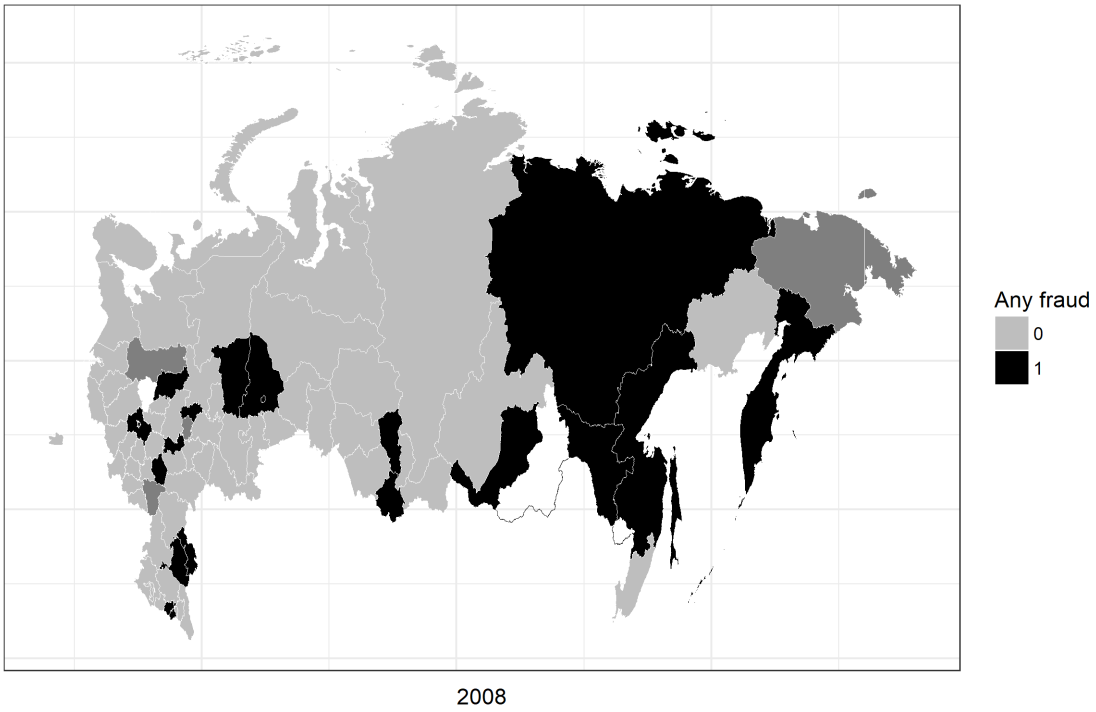

Figure A.26: Falsification, 2008

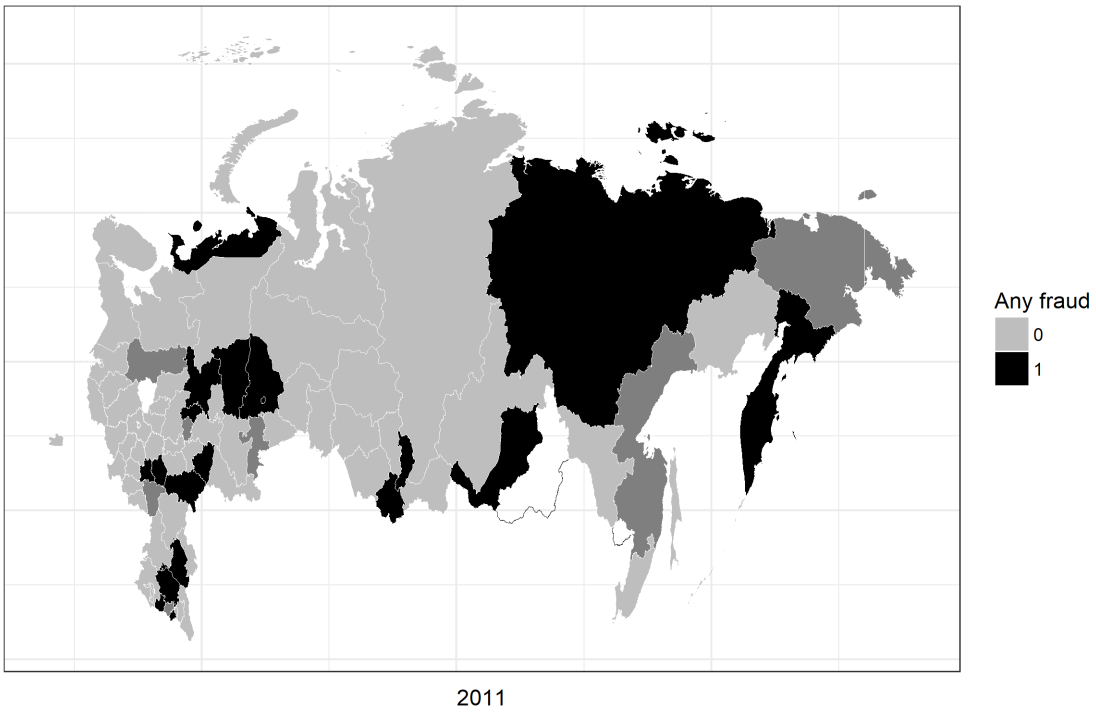

Figure A.27: Falsification, 2011

Figure A.28: Falsification, 2012

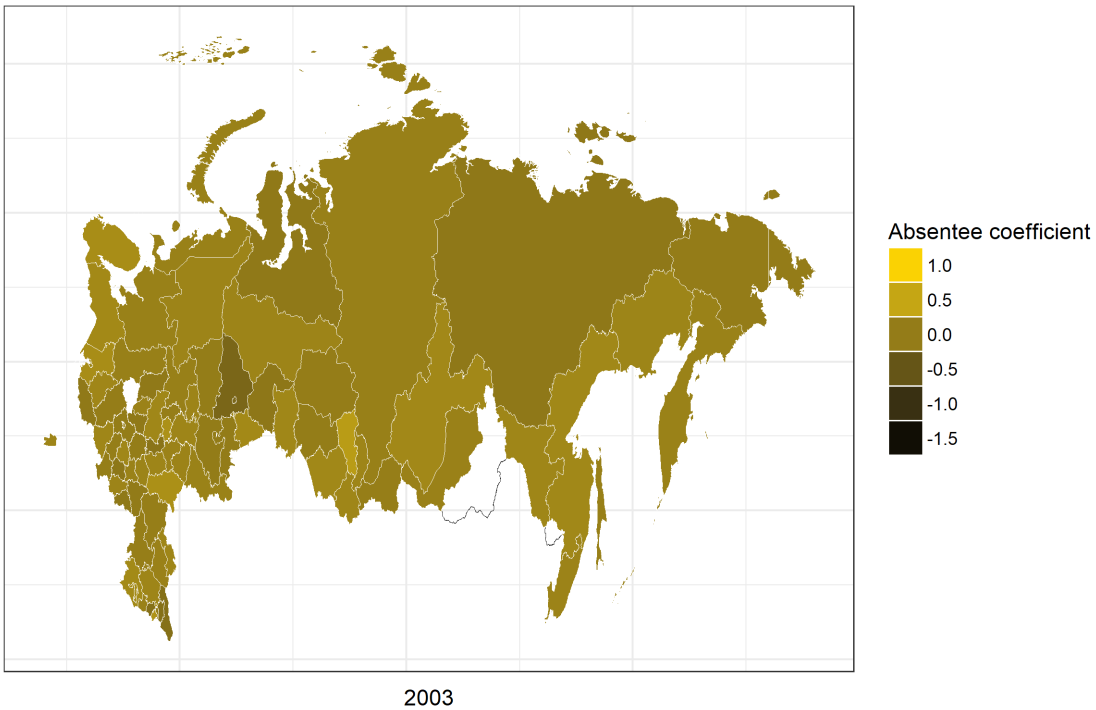

Figure A.29: Vote-buying / voter pressure, 2003

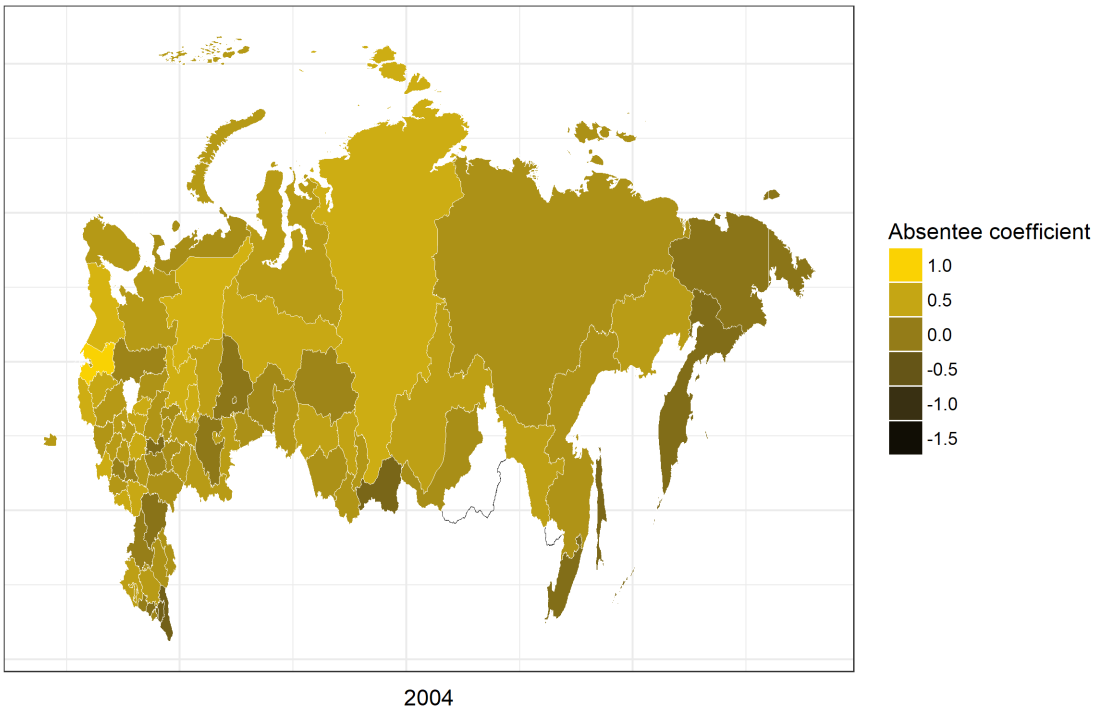

Figure A.30: Vote-buying / voter pressure, 2004

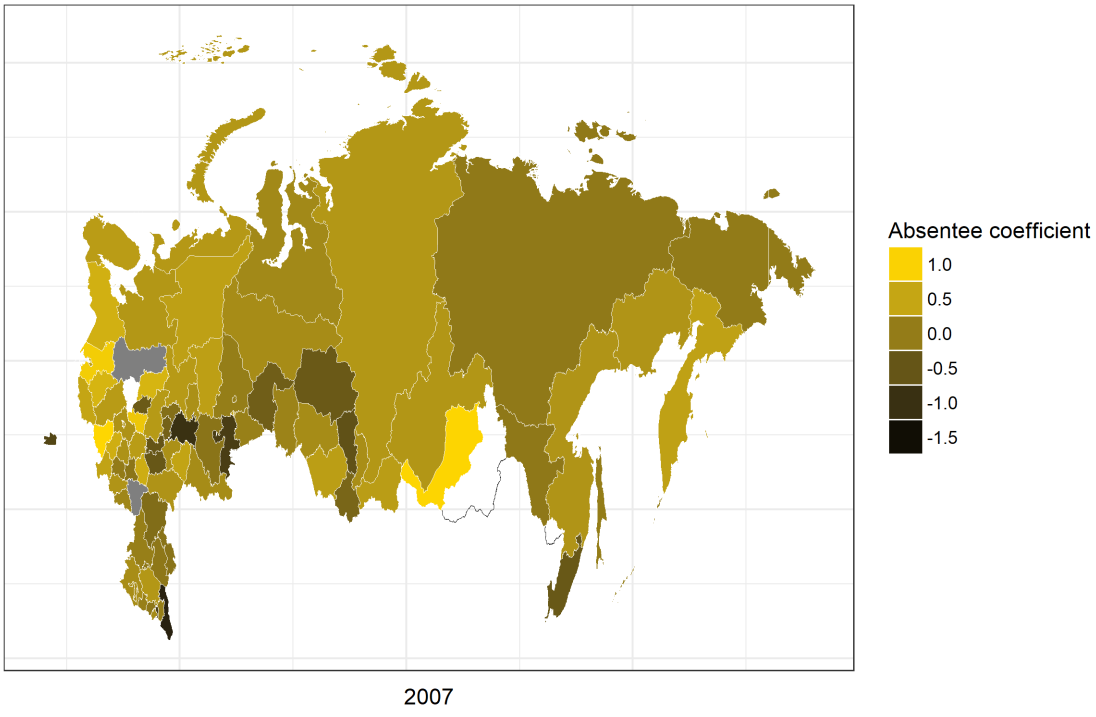

Figure A.31: Vote-buying / voter pressure, 2007

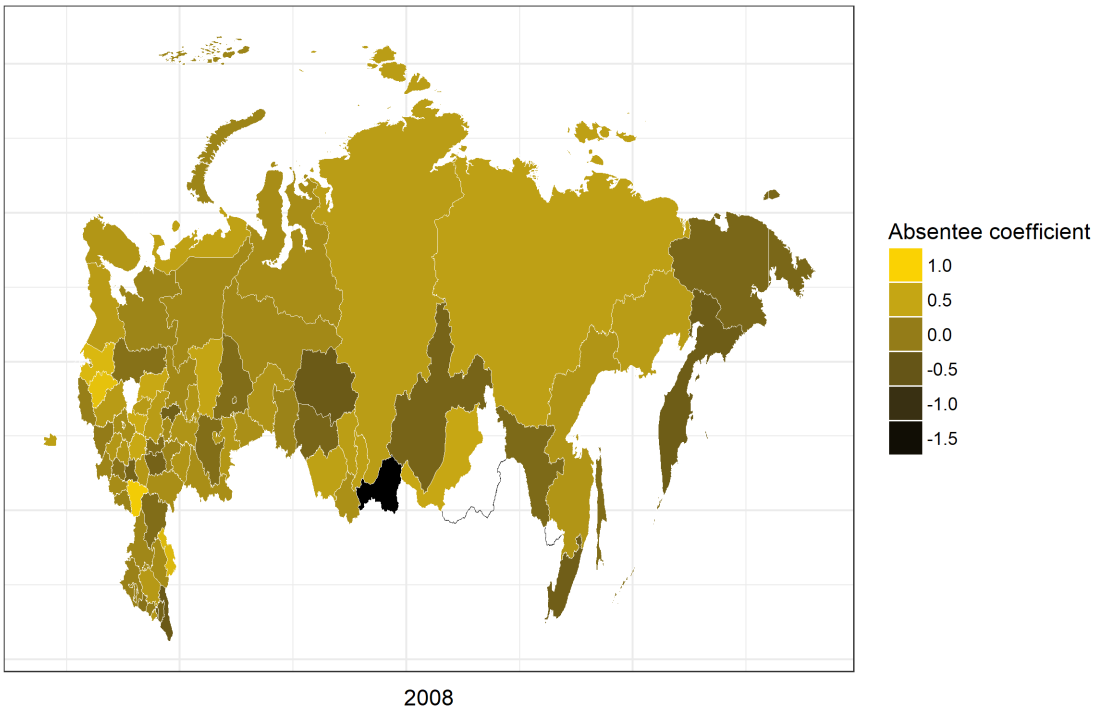

Figure A.32: Vote-buying / voter pressure, 2008

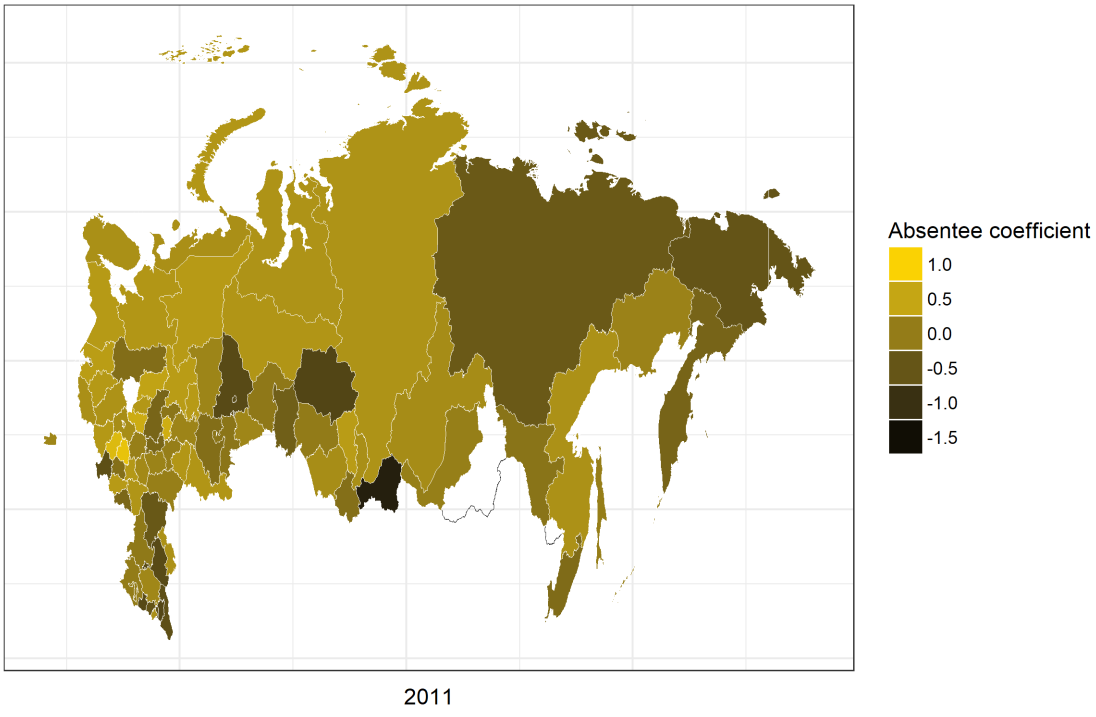

Figure A.33: Vote-buying / voter pressure, 2011

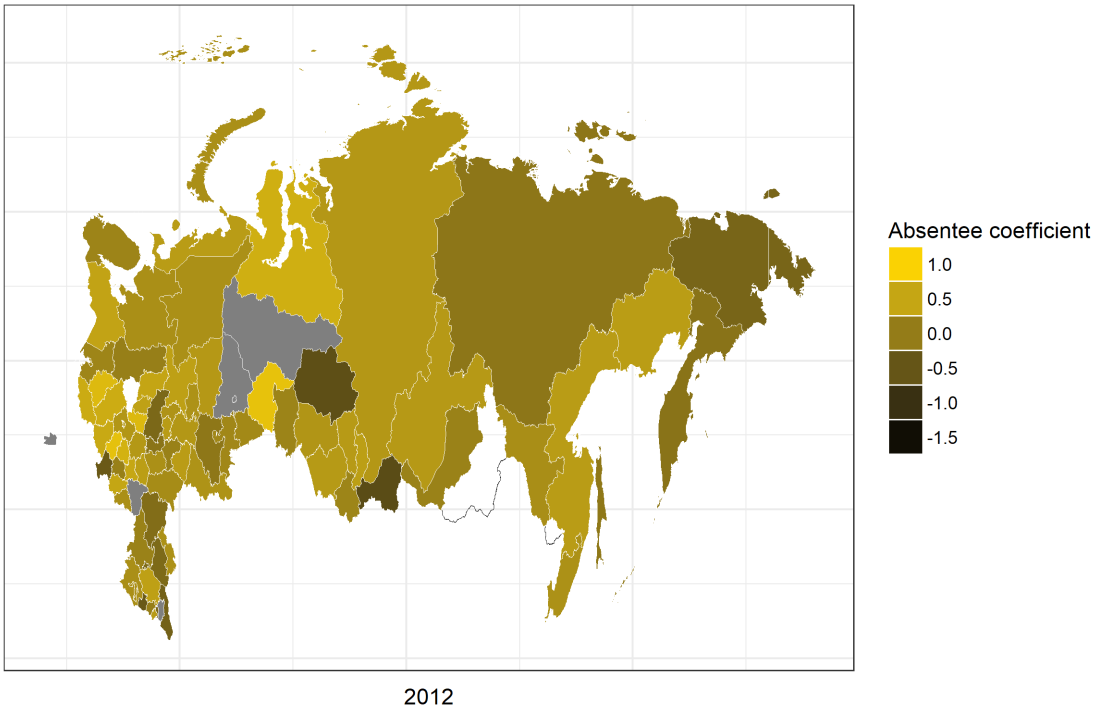

Figure A.34: Vote-buying / voter pressure, 2012

APPENDIX B

B.1 Marginal effects plots

Marginal effects plots for the remaining models in Tables 3.1 and 3.2 in Chapter 3 are provided below. In general, they show that the results for Models 3, 4, 6, and 7 confirm the results shown in the main text for Models 2 and 6. That is, they show that when patronage conditions favor the PAN, fraud affecting that party is more likely in regions where a PAN governor is in office or an alternation in the governorship has ever occurred. They also show the converse effect; that shifts in local control away from the PRI result in reduced probability of PAN fraud even when national patronage resources remain under PRI control.

B.2 Parallel trends assumption for difference-in-differences models

The parallel trends assumption for difference-in-differences models appears to be satisfied for Nayarit and Durango. The plots below show the estimated relationship between turnout and absolute vote-share for the PAN and the PRI in Nayarit (the treatment case) and Durango, from 1991 to 2012. Figure B.9 shows the estimated level of manipulation on behalf of the PAN; the coefficients increase in parallel prior to the first alternation in power in Nayarit in 1997, though with an anomalous dip for Durango in 1997. In all cases, PAN manipulation appears to be less common in the treatment case than the control case, a difference which intensifies after treatment. As shown in Figure B.10, the parallel trend assumption also appears to be satisfied for the PRI prior to treatment in Nayarit, after which outcomes in the two states become much more varied.

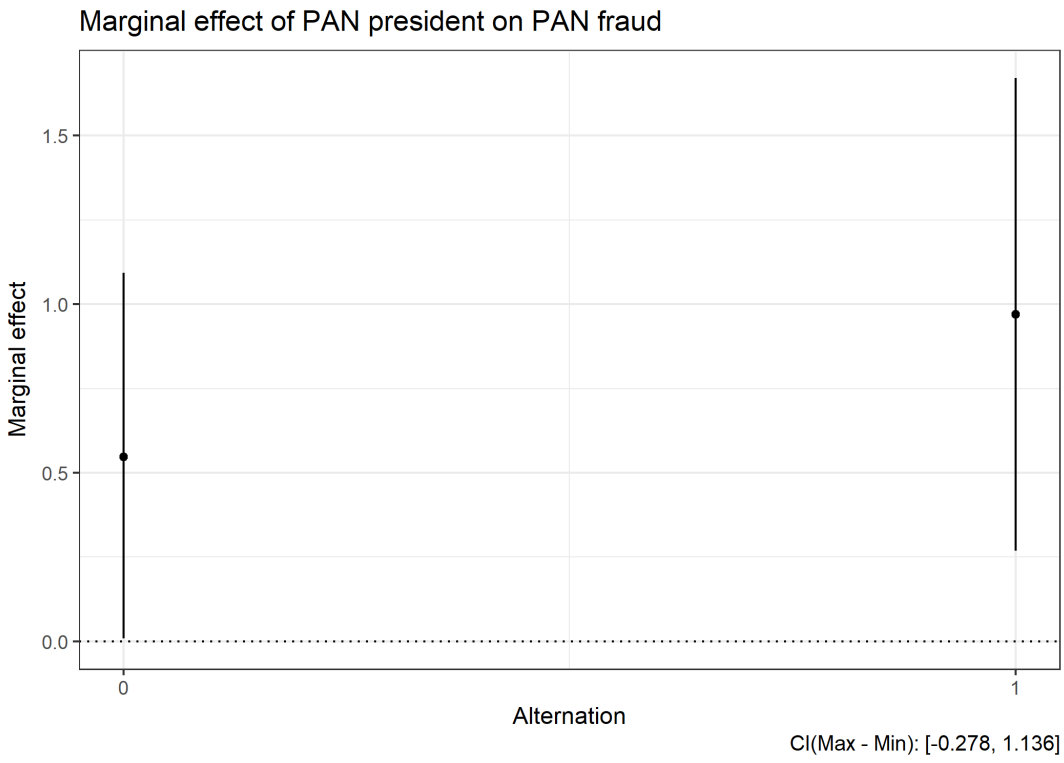

Figure B.1: Marginal effects of PAN president on PAN fraud

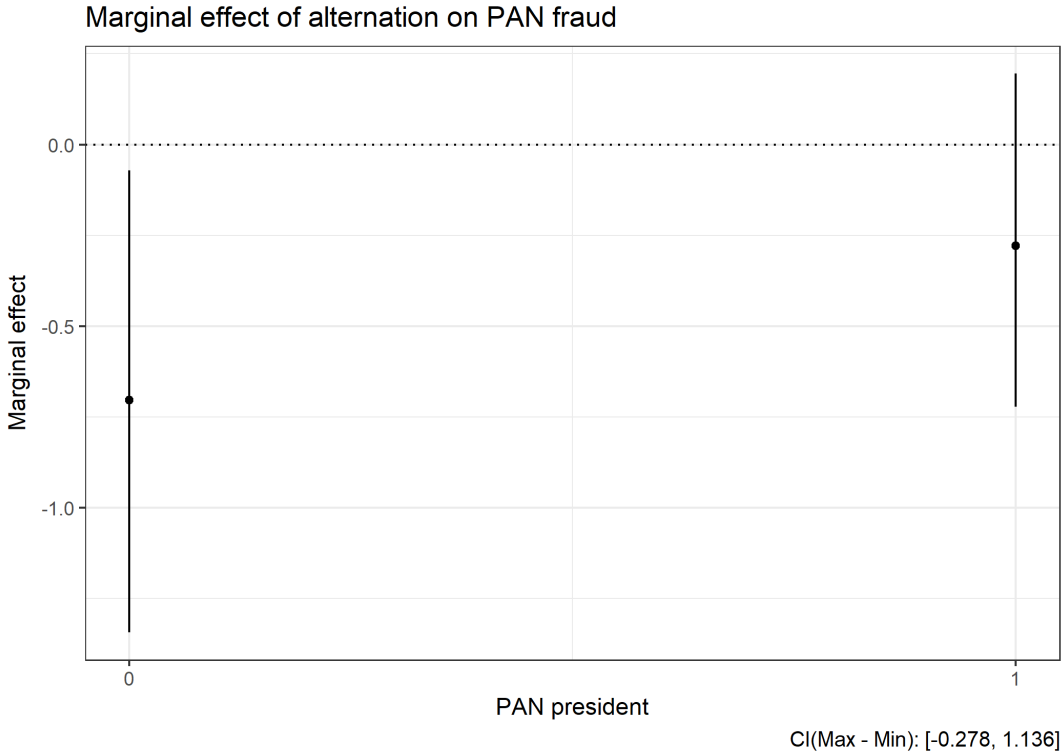

Figure B.2: Marginal effects of alternation on PAN fraud

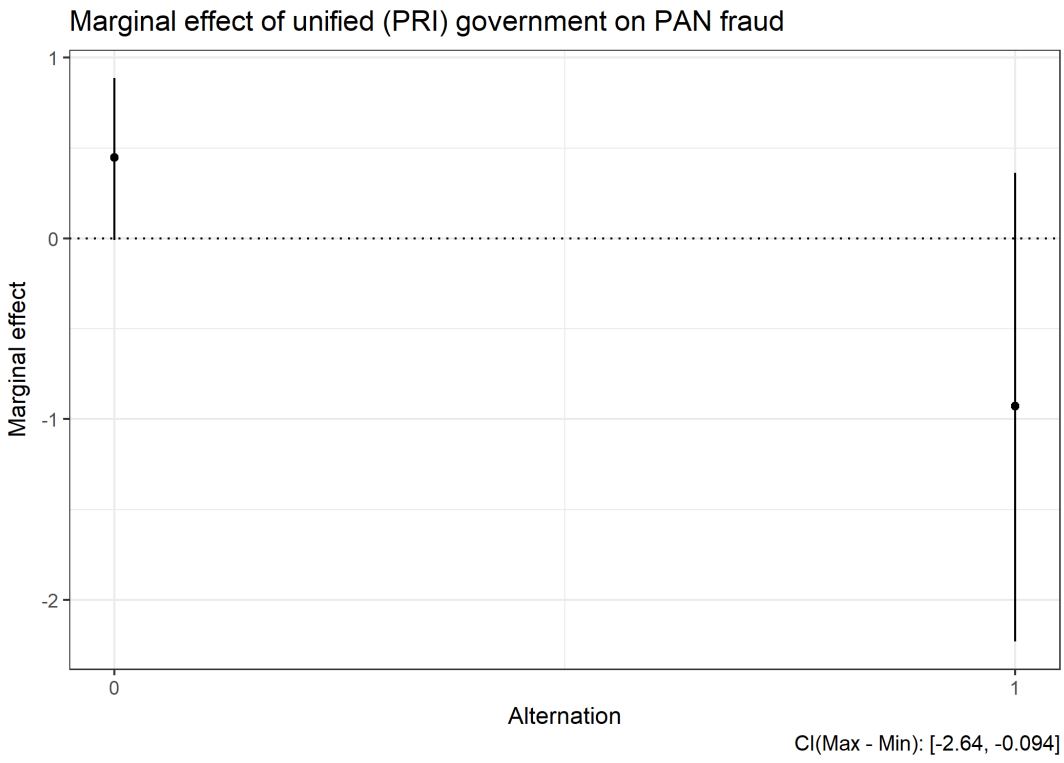

Figure B.3: Marginal effects of unified (PRI) government on PAN fraud

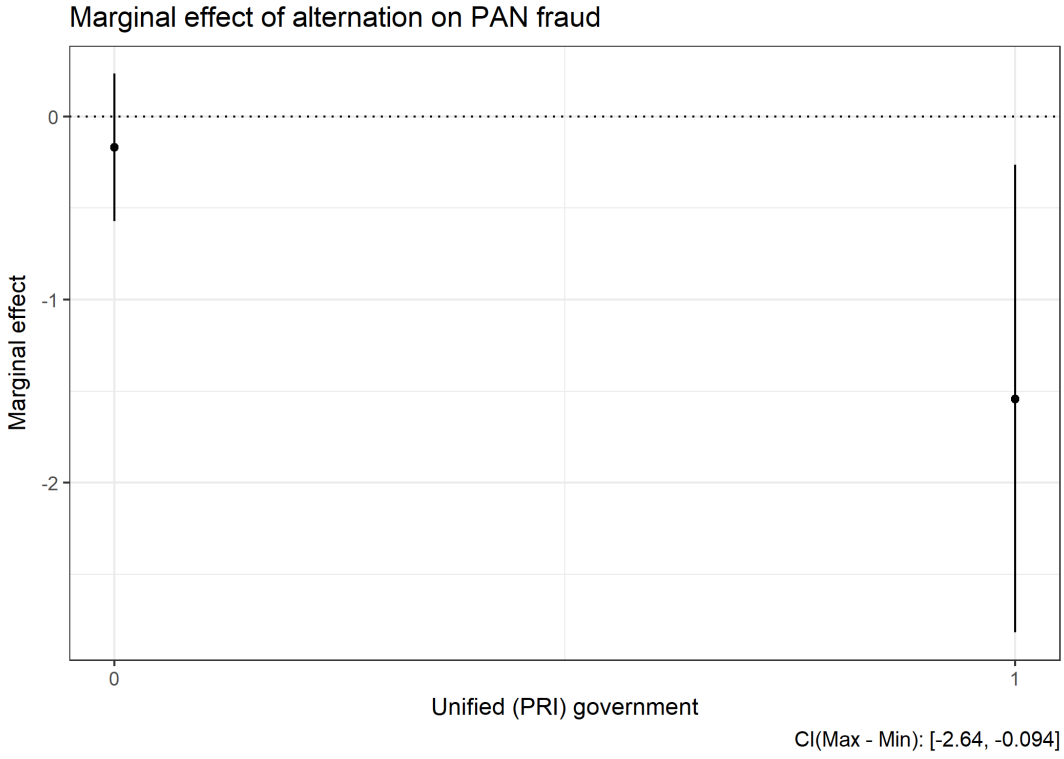

Figure B.4: Marginal effects of alternation on PAN fraud

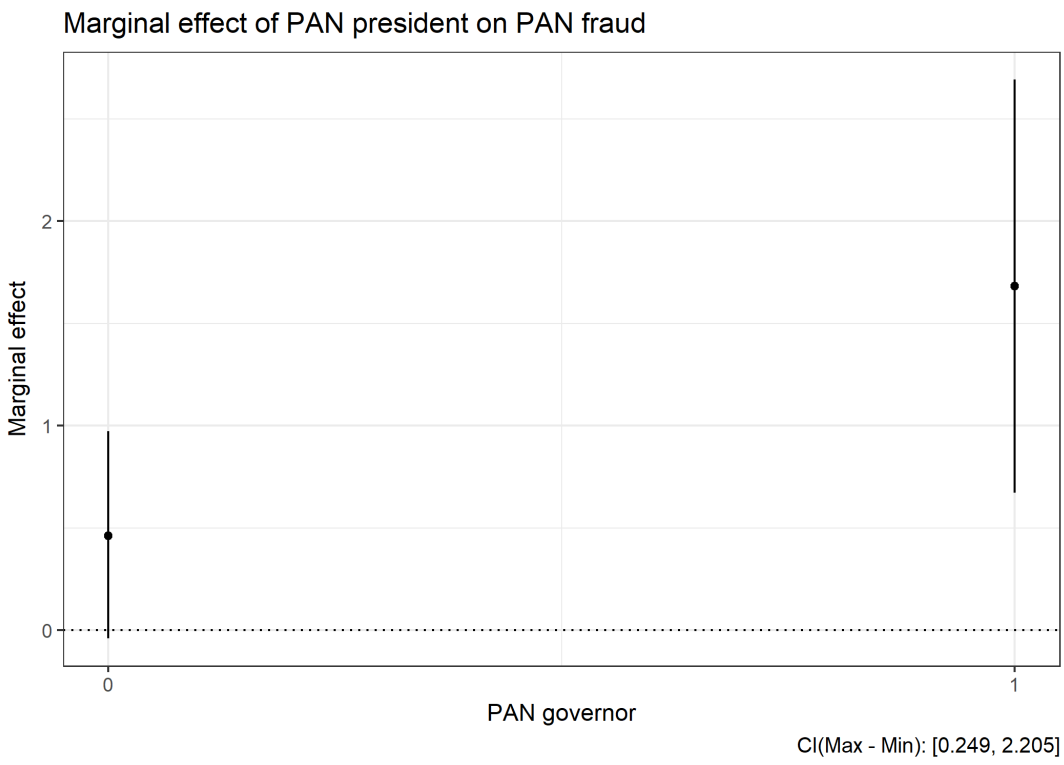

Figure B.5: Marginal effects of PAN president on PAN fraud

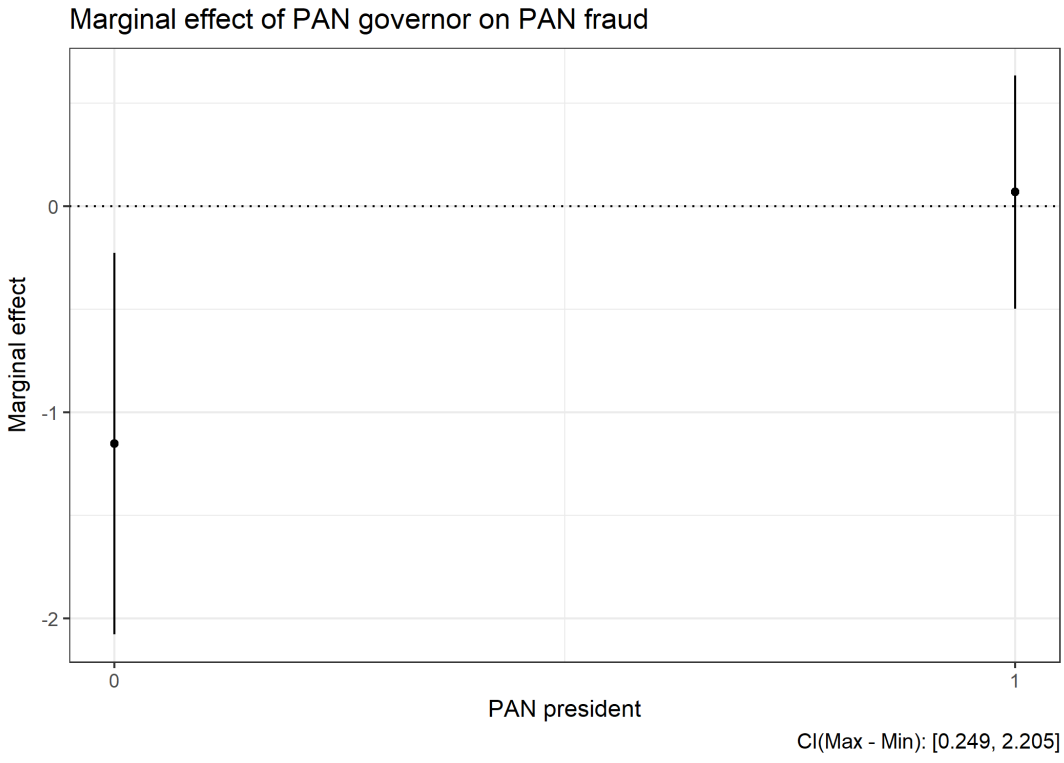

Figure B.6: Marginal effects of PAN governor on PAN fraud

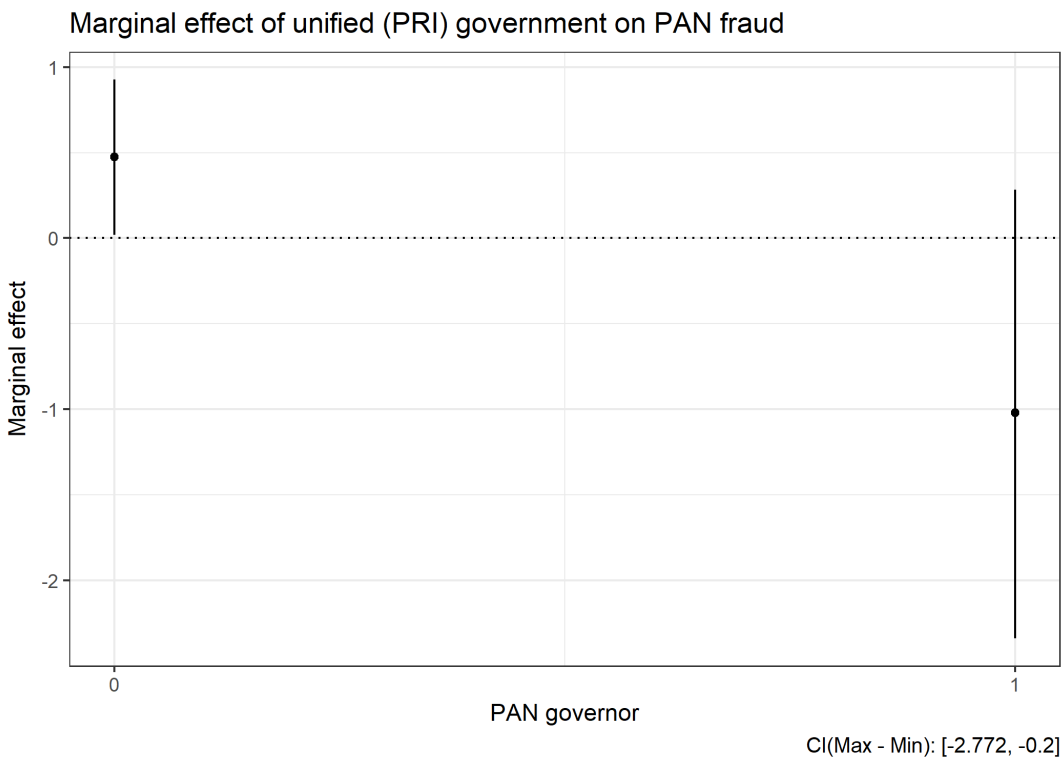

Figure B.7: Marginal effects of unified (PRI) government on PAN fraud

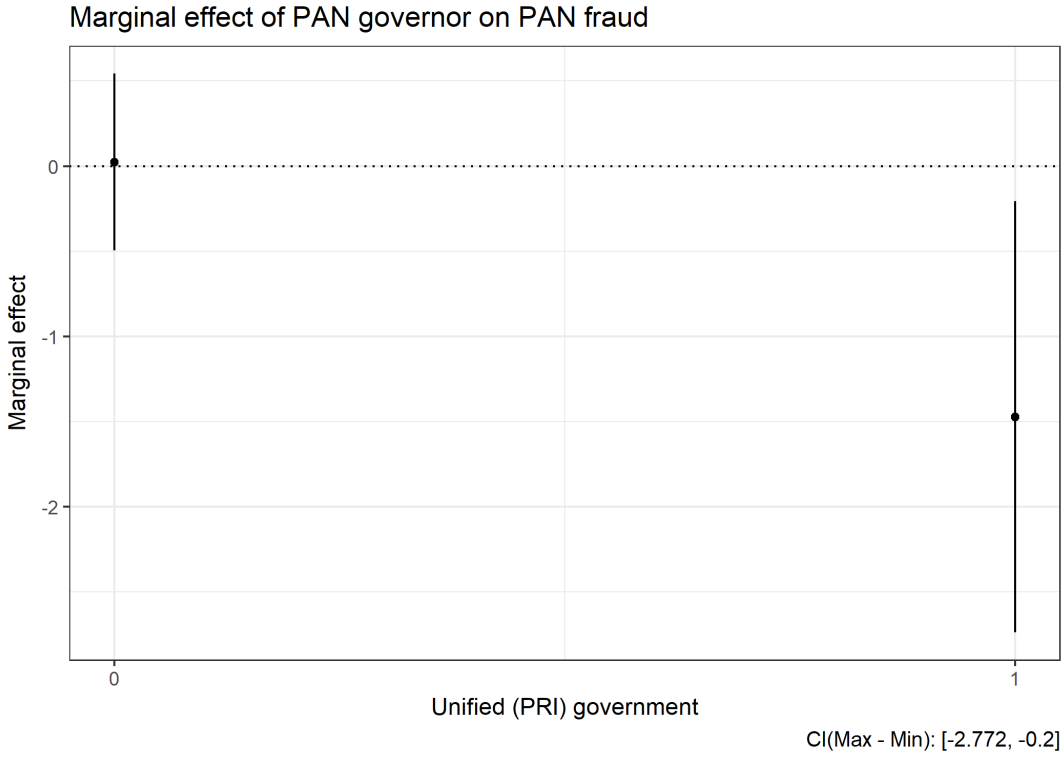

Figure B.8: Marginal effects of PAN governor on PAN fraud

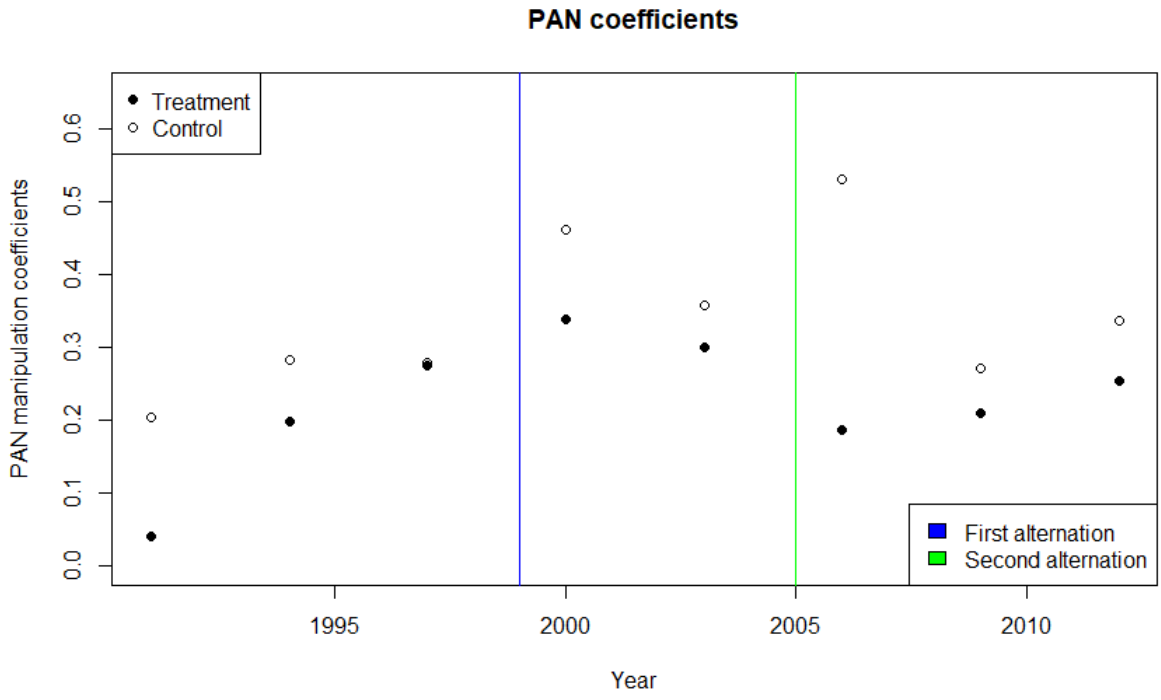

Figure B.9: Estimated PAN manipulation in treatment and control cases, 1991-2012

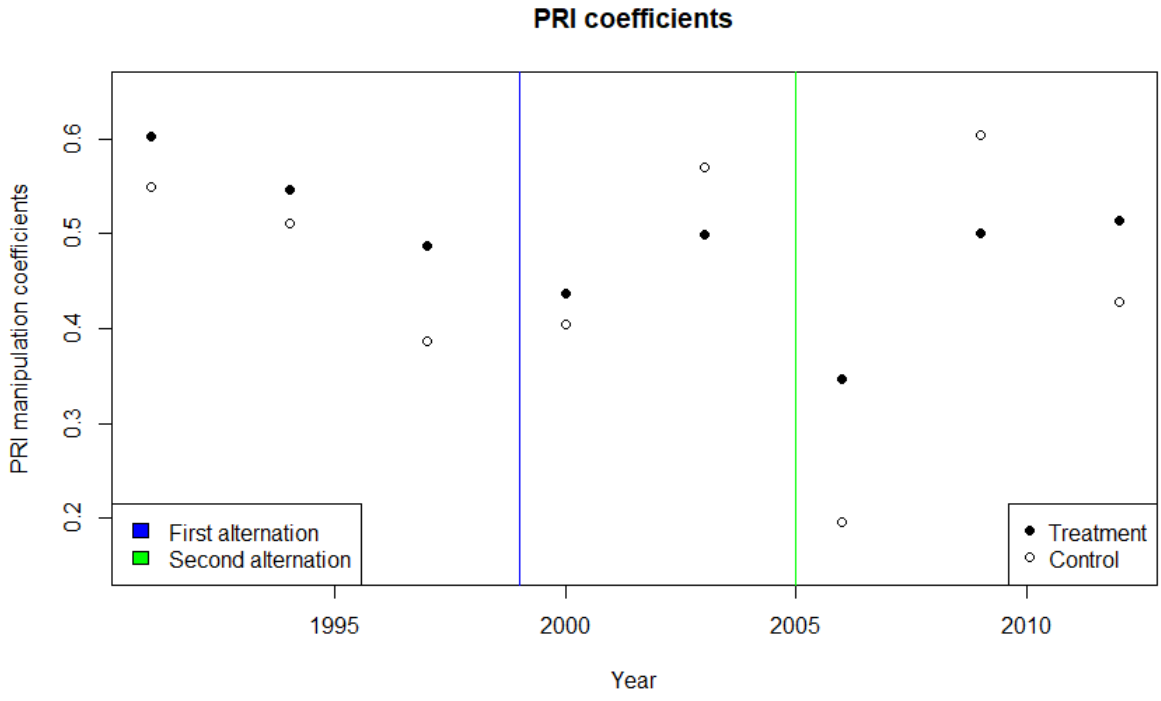

Figure B.10: Estimated PRI manipulation in treatment and control cases, 1991-2012

APPENDIX C

C.1 Russian-language version of survey-experimental questions

Q1: ПРЕДСТАВЬТЕ ВЫБОРЫ, В КОТОРЫХ ОДИН УЧАСТНИК ЛИДИРУЕТ С НЕБОЛЬШИМ ОТРЫВОМ, ТАК ЧТО НИКТО НЕ ЗНАЕТ, КТО ПОБЕДИТ. ПРЕДСТАВЬТЕ, ЧТО ЧЛЕН МЕСТНОЙ ИЗБИРАТЕЛЬНОЙ КОМИССИИ УЛИЧЕН В ПОДТАСОВКЕ РЕЗУЛЬТАТОВ ВЫБОРОВ НА СВОЕМ УЧАСТКЕ. ПО ВАШЕМУ МНЕНИЮ, НАСКОЛЬКО СУРОВО НУЖНО НАКАЗЫВАТЬ ПОДОБНОЕ ПРЕСТУПЛЕНИЕ, ПО СРАВНЕНИЮ НАПРИМЕР, С УГОНОМ АВТОМОБИЛЯ? ДОЛЖЕН ЛИ ПРЕДСТАВИТЕЛЬ КОМИССИИ БЫТЬ НАКАЗАН ...

1. гораздо менее сурово, чем кто-то, совершивший угон автомобиля
2. несколько менее сурово
3. примерно так же
4. несколько более сурово
5. гораздо более сурово, чем кто-то, совершивший угон автомобиля

Q2: ИНОГДА В РОССИИ ПРОИСХОДЯТ ПУБЛИЧНЫЕ ПРОТЕСТЫ. Я ЗАЧИТАЮ ВАМ СПИСОК ИЗ ПЯТИ СОБЫТИЙ, КОТОРЫЕ МОГУТ ЗАСТАВИТЬ ЛЮДЕЙ ВЫЙТИ НА ПРОТЕСТНЫЕ АКЦИИ. ПО ВАШЕМУ МНЕНИЮ, СКОЛЬКО ИЗ ЭТИХ СОБЫТИЙ ОПРАВДЫВАЮТ ПУБЛИЧНЫЙ ПРОТЕСТ ПРОТИВ НИХ? ВАМ НЕ НУЖНО ГОВОРИТЬ, КАКИЕ ИМЕННО СОБЫТИЯ ОПРАВДЫВАЮТ ПУБЛИЧНЫЙ ПРОТЕСТ - ТОЛЬКО ОБЩЕЕ ЧИСЛО ТАКИХ СОБЫТИЙ В СПИСКЕ (НОЛЬ, ЕСЛИ ВЫ СЧИТАЕТЕ, ЧТО НИЧТО ИЗ ПЕРЕЧИСЛЕННОГО НЕ ПОДХОДИТ)

- на одной из улиц несколько недель не ремонтируется яма в асфальте
- местный работодатель задерживает зарплату на несколько месяцев
- местные чиновники пытаются незаконно повлиять на результаты выборов
- подоходный налог повысится на один процент
- существенно уменьшатся пенсии

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